
REMEDIAL SITE ASSESSMENT DECISION – EPA Region 05

Site Name: 60 MINUTE CLEANERS

Alias(es): 60 MINUTES CLEANERS

City: INDIANAPOLIS County or Parish: MARION

State: IN

Refer to Report Dated: 03/10/2015

EPA ID: INN000500193

Report Developed By: STATE

State ID:

Report Type: Preliminary Assessment (00X) #001

Decision Date: 03/10/2015

- ☒ 1. Further Remedial Site Assessment Under CERCLA (Superfund) is not required because:
NFRAP-Site does not qualify for the NPL based on existing information

☐ 2. Further Assessment Needed Under CERCLA.

☐ 3. Remedial study/cleanup needed.

Decision/Rationale:

The U.S. Environmental Protection Agency (EPA) has determined that no further remedial action by the Federal Superfund program is warranted at the referenced site, at this time. The basis for the no further remedial action planned (NFRAP) determination is provided in the attached document. A NFRAP designation means that no additional remedial steps under the Federal Superfund program will be taken at the site unless new information warranting further Superfund consideration or conditions not previously known to EPA regarding the site are disclosed. In accordance with EPA's decision regarding the tracking of NFRAP sites, the referenced site may be removed from the CERCLIS database and placed in a separate archival database as a historical record if no further Superfund interest is warranted. Archived sites may be returned to the CERCLIS site inventory if new information necessitating further Superfund consideration is discovered.

Elevated levels of PCE and TCE detected in on-site groundwater monitoring well samples. Groundwater flow is generally towards the Riverside and White River well fields and contamination from the site may be impacting those well fields. The site will be addressed either as a source for the well field contamination or through the state clean-up program.

Decision/Rationale (Continued):

Site Decision Made By: David Brauner, SAM

Signature: _____

David A. Brauner

Decision Date: 03/10/2015



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Michael R. Pence
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

October 21, 2014

Ms. Nuria Muniz
NPL Coordinator
Superfund Division SR-6J
U.S. EPA, Region V
77 West Jackson Boulevard
Chicago, IL 60604-3507

Dear Ms. Muniz:

Re: Preliminary Assessment
Haldur, Inc, d.b.a.
Penn 60 Minute Cleaners
Indianapolis, Marion County
CERCLIS ID# INN000500193

SITE SUMMARY

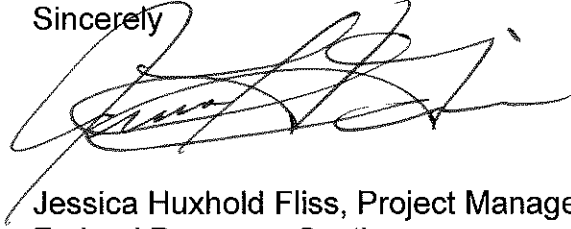
The 60 Minute Cleaners Site is a commercial dry cleaning facility located at 2175 N. Pennsylvania St., Indianapolis, Marion County, Indiana.

The Site was discovered during an investigation of a nearby Brownfields property. The investigation documented off-site and upgradient groundwater contamination, including trichloroethylene (TCE) and perchloroethylene (PCE) at 8.98 parts per billion (ppb) and 3,940 ppb, respectively. These levels are above the MCL of 5.0 ppb. The investigation included samples taken within the right-of-way directly adjacent to the 60 Minute Cleaners property. The report concluded that the source of the groundwater contamination was potentially 60 Minute Cleaners.

The area around the Site is predominantly residential and commercial. The nearest well in the White River and Riverside Wellfields is located approximately 5000 feet southwest of the site.

If you have questions regarding the contents of this correspondence, please contact me at (317) 233-2823 or at jfliss@idem.in.gov.

Sincerely

A handwritten signature in black ink, appearing to read 'Jessica Huxhold Fliss', written over a horizontal line.

Jessica Huxhold Fliss, Project Manager
Federal Programs Section
Office of Land Quality

cc: Denise Boone, U.S. EPA
Frances Dean, U.S. EPA
Rex Osborn, IDEM

PRELIMINARY ASSESSMENT REPORT

**HALDUR, INC. D.B.A. PENN 60 MINUTE CLEANERS SITE
INDIANAPOLIS, INDIANA
MARION COUNTY**

Prepared by

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF LAND QUALITY
FEDERAL PROGRAMS SECTION
SITE INVESTIGATION PROGRAM**

October 20, 2014

Signature Page

Preliminary Assessment Report

**Haldur, Inc. d.b.a. Penn 60 Minute Cleaners
Indianapolis, Indiana
Marion County**

Prepared by:

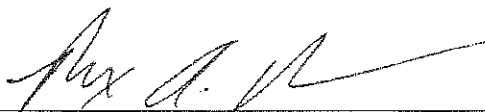


JESSICA HUXHOLD FLISS, PROJECT MANAGER
Site Investigation Program, Federal Programs Section
Indiana Department of Environmental Management

Date:

10/21/14

Approved by:



REX OSBORN, SECTION CHIEF
Federal Programs Section
Indiana Department of Environmental Management

Date:

10/24/14

Approved by:



EPA SITE ASSESSMENT MANAGER
U.S. EPA Region V

Date:

3/10/15

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ATTACHMENTS

Attachment A	Figure 1 – Site Location Aerial Map Figure 2 – Site Location Topographic Map Figure 3 – 4-Mile Radius Map Figure 4 – 15-Mile Surface Water Map Figure 5 – Wellhead Protection Area Map [Confidential]
Attachment B	IDEM Sample Results Riverside and White River Wellfields 2014
Attachment C	<i>Additional Subsurface Investigation Report, 2131 – 2151 North Meridian Street</i>
Attachment D	<i>Off-Site Groundwater Investigation Report, 2131 – 2151 North Meridian Street</i>
Attachment E	<i>Comfort Letter (Second Correction), Proposed Redevelopment 2131 - 2151 N. Meridian Street</i>
Attachment F	Site Photographs
Attachment G	IDNR Sensitive Environments Letter [Confidential]
Attachment H	Citizens Energy Riverside and White River Wellfield Drinking Water System Details [Confidential]

SECTION 1.0 INTRODUCTION

The Indiana Department of Environmental Management (IDEM), Office of Land Quality (OLQ), Federal Programs Section, Site Investigation Program, under a Cooperative Agreement (CA) with the United States Environmental Protection Agency (U.S. EPA), Region V Office, has been funded to perform Preliminary Assessments (PA) at certain sites listed in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, commonly known as Superfund, and the Superfund Amendments and Reauthorization Act (SARA) of 1986.

The primary objectives of the PA are to collect readily available information and conduct a site and environmental reconnaissance, to distinguish between sites that pose little or no risk to human health and the environment and sites that require further investigation, and to identify sites after requiring assessment for possible emergency response actions.

The Site Investigation Program was given approval by the U.S. EPA to conduct a PA at the 60 Minute Cleaners Site located in Indianapolis, in Marion County, Indiana based on the results of a Pre-CERCLIS Screening (PCS) that was approved December 19, 2013.

Information contained in this report will be used to evaluate this site to support a site decision regarding the need for further Superfund action, including the possibility for the 60 Minute Cleaners Site to be considered for inclusion on the National Priorities List (NPL) of hazardous waste sites.

SECTION 2.0 SITE BACKGROUND

Section 2.1 Site Location

The 60 Minute Cleaners Site is located at 2175 N. Pennsylvania St., Indianapolis, Marion County. The Site can be found on the United States Geological Survey Indianapolis West, Indiana 7.5 Minute Quadrangle Map at 39.797292° N latitude, 86.155692° W longitude, T16N, R3E, Section 25. The Site is depicted in Figure 1 of Attachment A.

The area surrounding the Site consists of mixed residential and commercial properties. Commercial facilities lie to the east and west. Residential properties are immediately to the north and south of the Site. The White River Wellfield is located less than one (1) mile to the southwest.

Section 2.2 Site History

The Site is located on a former residential property at 2175 N. Pennsylvania Street. The property was originally platted as two lots, 2175 and 2179 N. Pennsylvania St. until the property changes addresses on the 1976 Sandborn Fire Insurance Map (updated) to 2171 N. Pennsylvania. According to the 1980 Indianapolis City Directory, the property was redesignated 2179 N. Pennsylvania St., when a building was erected to hold B&L Records and Variety Store. The Variety Store is listed as occupying the property through 1985, when the City Directory lists 40 Minutes Cleaners as the occupant.

The property is listed as being owned by the registered agent of Haldur, Inc., originally Sherman 40 Minute Cleaners, a.k.a Penn 60 Minute Cleaners. The legal entity was created August 26, 1976.

FIELD INVESTIGATION ACTIVITIES

Section 2.3 Site Reconnaissance and Investigation

On April 30, 2013, IDEM staff conducted a reconnaissance visit to the Site. The purpose of the reconnaissance was to document area conditions and identify nearby industries. The Site is located on the corner of 22nd Street and Pennsylvania Street. An alley exists behind the building to the east, and a parking lot for the Talbot Street Theatre is on the other side of the alley. There is a residential property located due south across a small pedestrian path, less than ten feet from the building that houses the cleaning business. The offices of American Construction Company are directly to the west, across the street, with residential properties directly south of American Construction Company. See Attachment F for photographs of the area.

IDEM reviewed available information from the nearest water supply, the White River Wellfield (see Wellhead Protection Map, Attachment A, Figure 5). As part of the Site Inspection for the Riverside Wellfield, IDEM Site Investigation staff sampled all available wells in the adjacent Riverside and White River wellfields in 2014. Results are included as Attachment B.

Section 2.4 Past Environmental Investigations

No environmental investigations have occurred on the 60 Minute Cleaners property. However, investigations conducted through IDEM's Brownfields program at 2131 – 2151 N. Meridian Street, Indianapolis, and documented in the report *Additional Subsurface Investigation Report* (included as Attachment C) indicated off-site volatile organic compound (VOC) groundwater contamination, including cis-1,2, dichloroethene (1,2 – DCE), chloroform, methyl tertiary-butyl ether (MTBE), toluene, tetrachloroethylene (PCE), and trichloroethylene (TCE)). Levels of PCE ranged from 9.6 parts per billion (ppb) to 2,400 ppb. Levels of TCE ranged from 1.0 ppb to 27 ppb. The report concluded that the source of the contamination was likely from an off-site, upgradient location.

Additional investigations occurred and were documented in the *Offsite Groundwater Investigation Report* included as Attachment D. The report documented the advance of six borings in the right-of-way of Pennsylvania Street, and at 2162 N. Pennsylvania Street, directly downgradient of 60 Minute Cleaners. PCE was detected in groundwater at five of six locations ranging from 8.31 ppb to 3,940 ppb, well above the drinking water MCL of 5.0 ppb. TCE was detected in one sample at 8.98 ppb, above the drinking water MCL of 5.0 ppb.

IDEM issued a comfort letter for 2131 – 2151 N Meridian Street (Attachment E) on June 5, 2008. Among other, site-specific information, the letter concluded that “due to the locations and concentrations of the groundwater contamination detected on-site, the detections are consistent with groundwater transport from an off-site source.”

SECTION 3.0 MIGRATION PATHWAYS

Section 3.1 Ground Water

The ground water migration pathway is the primary focus of this investigation. Ground water samples were not taken as part of this Preliminary Assessment. However, sampling was conducted downgradient of the Site as part of a Brownfields investigation and the results were provided to IDEM's Site Investigation Program. The investigation indicates that ground water at the Site has been impacted by TCE and PCE contamination at a level that exceeds the drinking water MCL. In addition, the Site is located approximately 5,000 feet Northeast of the Indianapolis White River municipal drinking water wellfield and is located within the well head protection area (WHPA). The Riverside wellfield (adjacent) and White River wellfields serve approximately 15,000 residents (Attachment G). The target population in the 4-mile radius around the Site is represented in Figure 3 of Attachment A.

Section 3.1.1 Site Geology

The study site is within the upper trunk of the main White River valley (IGS 2000, Figure 13). The trunk valley forms a broad, north-south-trending, outwash-capped lowland that bisects Marion County down the middle (IGS 2000). Soils in the vicinity consist of Urban Land: Genesee Complex, which are well drained soils on loamy alluvium often altered greatly by anthropogenic activities (USDA April 15, 2014).

Bedrock is the Devonian-aged Muskatatuck group consisting of crystalline limestone and lesser calcareous shales. Prior to glaciation, the top of the bedrock surface was exposed to weathering and underwent karst development (USGS 1994). A nearby well log (Indiana Department of Natural Resources (IDNR) #63847) shows fractures in the bedrock.

Section 3.1.2 Aquifer Description

Nearby regulated sites indicate the depth to ground water is approximately 12-16 feet below ground surface (bgs). The flow direction is anticipated to be to the west-southwest.

The geologic units within the White River valley axis are thick sections of sand and gravel interstratified with a few, small, widely scattered till units (IGS 2000, Table 2a). Approximately 80-100 feet of unconsolidated sand and gravel

are present on top of the bedrock in the area. The aquifer is unconfined and the recharge rate is high.

Since the site is within the delineated wellhead protection area, the aquifer data from city of Indianapolis wellhead protection plan can be applied to the materials in the study area (Wittman and Johnson 2000). They are:

Hydraulic conductivity: 100 ft/day

Recharge rate: 12 in/yr

Aquifer thickness: 200 ft

Pumping rate (WR-07): 1400 gpm

Section 3.1.3 Ground Water Sampling

The Comfort Letter for the 2131 – 2151 N. Meridian Street Property indicates that soil and groundwater collected in 2007 and 2008 was found to be contaminated with PCE and TCE from an upgradient, off-site source (see Attachment E and F and Section 2.4). There is a strong indication, based on sample locations, that the source of the TCE and PCE on the 2131 – 2152 N. Meridian Street Property is from a release at 60 Minute Cleaners. The groundwater contamination is well above established drinking water MCLs of 5 ppb for both TCE and PCE.

The Riverside and White River Wellfields are located within the 4-mile Target Distance Limit for 60 Minute Cleaners. In particular, two White River Wellfield wells (WR3 and WR7) are located within one mile of the site, and the site itself is within the five year time of travel. Both wellfields were sampled by IDEM for the Riverside Site Inspection in 2014. Well WR3 (White River Wellfield) showed TCE contamination at 4.9 ppb, just under the drinking water MCL. It is unknown at this time if the contamination from the area near 60 Minute Cleaners is impacting this wellfield, though given the shallow depth of the White River wells, the groundwater flow direction, and proximity, it is possible contamination from 60 Minute Cleaners area has reached this location. IDEM is currently assessing the Riverside and White River wellfields as a separate site investigation. Specific information regarding the wellfields, including populations served and sample results, are included in Attachments B and H.

Section 3.2 Surface Water

No surface water samples were taken as part of this Preliminary Assessment. The nearest surface water body is Fall Creek, which runs south/southwest and is located North and west of the Site Fall Creek. The 15-mile surface water pathway from the Site is depicted in Figure 4 of Attachment A. VOC contamination in this surface water pathway is unknown.

Section 3.2.1 Drinking Water Threat

The majority of residents within the 4-mile radius of the Site obtain drinking water from municipal wells. No known surface water intakes that are sources for drinking water exist within the 15-mile surface water pathway.

Section 3.2.2 Human Food Chain Threat

The human food chain threat category generally evaluates fisheries where consumption of contaminated species may occur. The primary fishery within the 15-mile surface water pathway from the Site is Fall Creek. A fish advisory exists for large channel catfish, common carp, and largemouth bass for polychlorinated biphenyl (PCB) contamination (Indiana Fish Consumption Advisory), however, PCBs are not a contaminant of concern for the site. The information gathered does not indicate that the surface water has been impacted by the ground water plume. A threat to the human food chain via the surface water pathway is unlikely.

Section 3.2.3 Environmental Threat

The IDNR was contacted to determine if any significant natural features or endangered, threatened, and rare species inhabit the vicinity of the Site. A review of the Site by the IDNR (Attachment G) revealed no endangered, threatened, or rare species in the immediate area; however, many endangered species of mollusk and bird exist in Fall Creek and the Fall Creek riparian area.

Section 3.3 Soil Exposure

No soil samples were obtained for this Preliminary Assessment. The Site is in a mixed residential and commercial area, providing potential targets in the event of an offsite release of hazardous materials. Previous soil samples were obtained in the vicinity during a Brownfields investigation, but none near enough to the site to indicate if soil contamination exists at the site property.

Section 3.4 Air Route

No air samples were collected as part of this Preliminary Assessment, nor were observed release criteria met for this pathway. No confirmed air release has been documented.

SECTION 4.0 SUMMARY AND CONCLUSIONS

Previous investigations near the 60 Minute Cleaners property indicate the site may be the source of high levels of TCE and PCE contamination migrating onto the 2131-2151 Meridian Street property. The White River Wellfield, part of the drinking water supply network for the City of Indianapolis, is located less than a mile southeast of the site and is also impacted by TCE, PCE, and other associated VOCs.

The most likely pathway of concern for contamination to impact the residents of Indianapolis is through the ground water pathway. Sample results obtained by the Site Investigation Program during the Site Inspection for the Riverside Wellfield indicate the White River Wellfield to be contaminated with PCE and TCE, and is the most likely target for any contamination from the 60 Minute Cleaners site.

REFERENCES

1. IDEM VFC # 38839665, EPA Notification of Hazardous Waste, dated September 25, 1986. Available at: <http://108.59.49.89/pages/public/search.aspx>
2. IDEM VFC # 23747983, Site Characterization: Paul's Service Station, UST FID # 9846, dated March 7, 1995. Available at <http://108.59.49.89/pages/public/search.aspx>
3. IDEM VFC # 24491409, Corrective Action Progress Report: Speedway # 6107, UST FID # 6705, dated October 27, 2005. Available at <http://108.59.49.89/pages/public/search.aspx>
4. IDNR Well Records #297220, #414793, #67027, #289992, #177397, and #63847. Available at: <https://secure.in.gov/apps/dnr/dowos/main.aspx>
5. Indiana Geological Survey (IGS), 2000, Hydrogeologic Framework of Marion County, Indiana, Open-file Study 00-14, 32 Figures, 15 plates.
6. Indianapolis City Directory, years 1960, 1970-1990, 2001. Located at <http://ulib.iupui.edu/digitalscholarship/collections/icd>. Web. Accessed May 2014.
7. "Indianapolis, Indiana" Google® Maps. Google April 14, 2014. Web. April 14, 2014.
8. Indianapolis Sandborn Fire Insurance Maps, years 1898-1950. Located at <http://www.ulib.iupui.edu/digitalscholarship/collections/sanbornip2>. Web. Accessed May 2014.
9. Office of the Indiana Secretary of State Business Search Online. Located at https://secure.in.gov/sos/online_corps/name_search.aspx. Search completed April 23, 2014.
10. USDA Web Soil Survey, located at: <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>, web, accessed April 15, 2014.
11. USGS, 1994, Hydrogeologic Atlas of Aquifers in Indiana, Water Resources Investigation Report 92-4142, pages 113-133.
12. USGS, 2013, 7.5 minute topographic map Indianapolis West, Jack Wittman and Paul Johnson, March 2000: *Indianapolis Water Company Riverside and Fall*

Creek Wellfields Capture Zone Delineation, prepared by Wittman Hydroplanning Associates, Inc. VFC Doc #s 12234026, 14918464, 14918465, and 14918466.

Attachment A

Figure 1 - Site Location Aerial Map

Figure 2 - Site Location Topographic Map

Figure 3 - 4-Mile Radius Map

Figure 4 - 15-Mile Surface Water Map

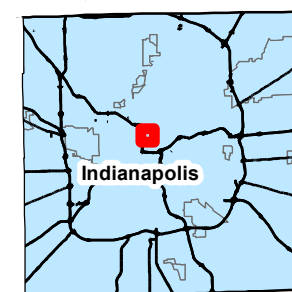
Figure 5 – Wellhead Protection Area Map [confidential]

Site Location Map
60 Minute Cleaner
EPA ID INS000095372
Indianapolis, Marion County
Latitude: 39.797292 (North)
Longitude: -86.155692 (West)

 **Parcel Boundary**
60 Minute Cleaners

0 250 500 1,000 Feet

0 62.5 125 250 Meters



Marion County

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By:
Kim Vedder, Office of Land Quality
Date: 06/13/2013



Sources:
Orthophotography - Obtained from World Imagery
Map Projection: UTM Zone 16 N
Map Datum: NAD83

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Attachment A Figure 2
Site Location Map
60 Minute Cleaner
EPA ID INS000095372
Indianapolis, Marion County
Latitude: 39.797292 (North)
Longitude: -86.155692 (West)



Parcel Boundary
60 Minute Cleaners

0 500 1,000 2,000 Feet

0 125 250 500 Meters



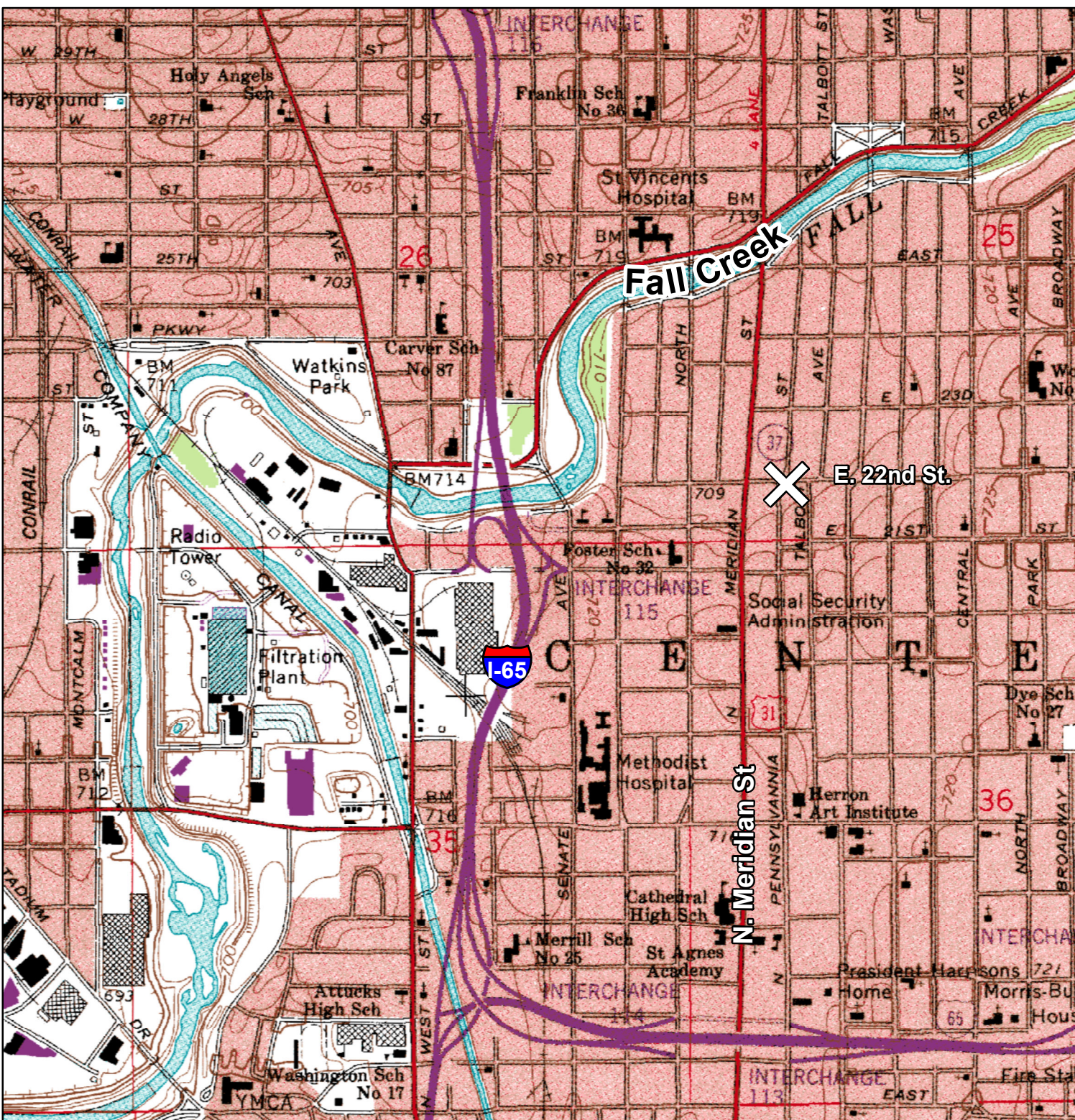
Marion County

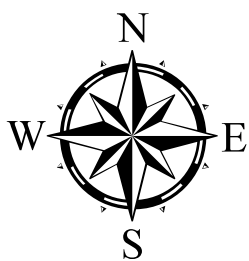
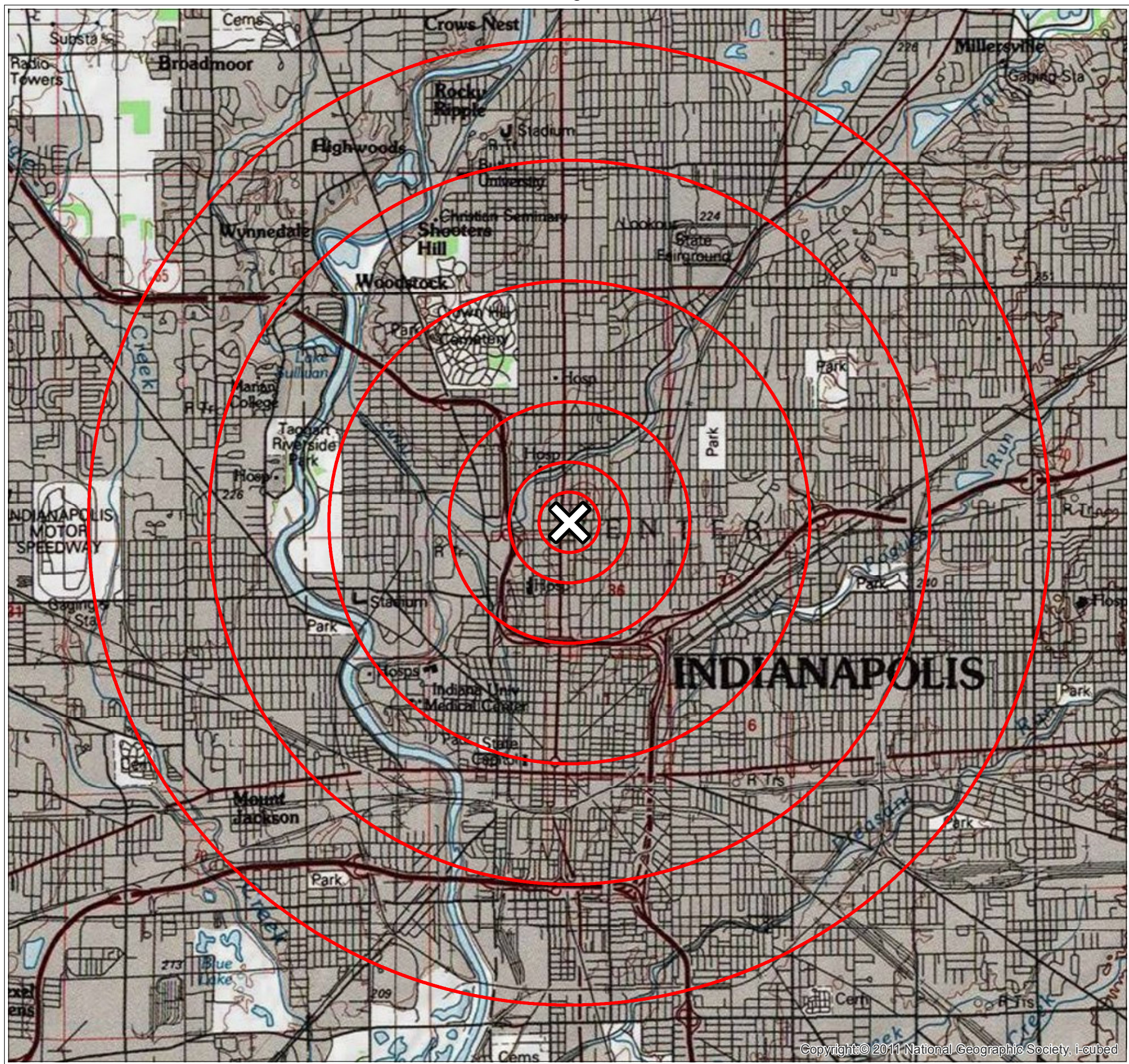
This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By:
 Kim Vedder, Office of Land Quality
Date: 04/29/2014



Sources:
 Orthophotography - Obtained from World Imagery
 Map Projection: UTM Zone 16 N
 Map Datum: NAD83





60 Minute Cleaners
Indianapolis, Marion County, IN
Four Mile Radius Map
EPA ID INS000095372
Latitude: 39.797292 (North)
Longitude: -86.155692 (West)



Buffer Distance	Adjusted Population
0 - 1/4 Mile	959
1/4 - 1/2 Mile	2,193
1/2 - 1 Mile	8,024
1 - 2 Mile	30,576
2 - 3 Mile	53,872
3 - 4 Mile	79,275
Total Adjusted Population	174,899

Mapped By: Kim Vedder, Office of Land Quality Date: 04/24/2014

Sources:
IDEM 4 Mile Mapper Application
Indiana Geographic Information Officer (GIO) Data Library
Orthophotography:
<http://services.arcgisonline.com/ArcGIS/services>
Census block group 2012 total population

Disclaimer: This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes. There are known sources of error in the population estimates presented on this map, including:

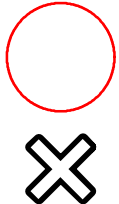
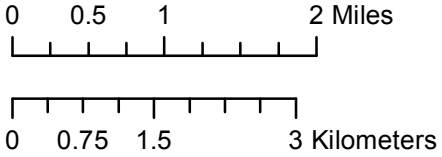
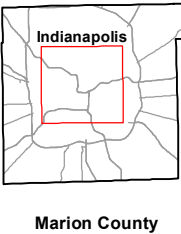
- The Census 2012 block group population data is an imperfect estimate of population.
- The adjusted population estimate derived from the Census 2012 block group data assumes that the population is evenly distributed in each block group polygon.

Method of Estimating Population:
The adjusted population estimate is the sum of Census 2012 block group populations. The adjusted population estimate (TOTPOP field) is adjusted to include only the areas of the block groups contained inside the buffers. The adjusted population estimate assumes that the population is evenly distributed in each block group polygon. The specific procedure used in this analysis is as follows:

1. The point for the center of the site is buffered at 1/4, 1/2, 1, 2, 3 and 4 miles.
2. The original area of the census block polygons is calculated and stored.
3. The buffers are used to clip the census block group polygons. This is a new area referred to as the shape area. The shape area has the attribute records associated with the original census block group polygon with the area of the new polygon area.
4. The shape area of the census block polygons is divided by the original area of the census block polygons to calculate the percent change.
5. The percent change result is then multiplied by the population of the original census block to yield a calculated population for the new polygon.
For example: Block Group A with an area of 10 square miles and a population of 200 people is split into 2 polygons by the 4 mile buffer ring. The area of the block group inside the 4 mile buffer is 2 square miles, or 20% of the area of the original 10 square mile block group. Assuming the population is uniformly distributed in Block Group A, the population from Block Group A that is within the 4 mile buffer ring should also be 20% of the total population for the block group. Twenty percent of 200 is 40 people. ($2 \div 10 \times 200 = 40$)
6. The newly calculated population statistics are associated in a database table that is converted into a layer file that is displayed in the Four Mile Radius Map. The new population figures from the layers (attribute tables) are then copied into a spreadsheet that subtracts the population figure from the previous buffer. This is done by taking the population for each buffer distance and subtracting the population of the next smaller buffer distance to provide a population figure for the donut area bounded by each pair of consecutive buffer distances (e.g. 0 to 1/4, 1/4 to 1/2, 1/2 to 1, 1 to 2). A population table is labeled and pasted into the Four Mile Radius Map.

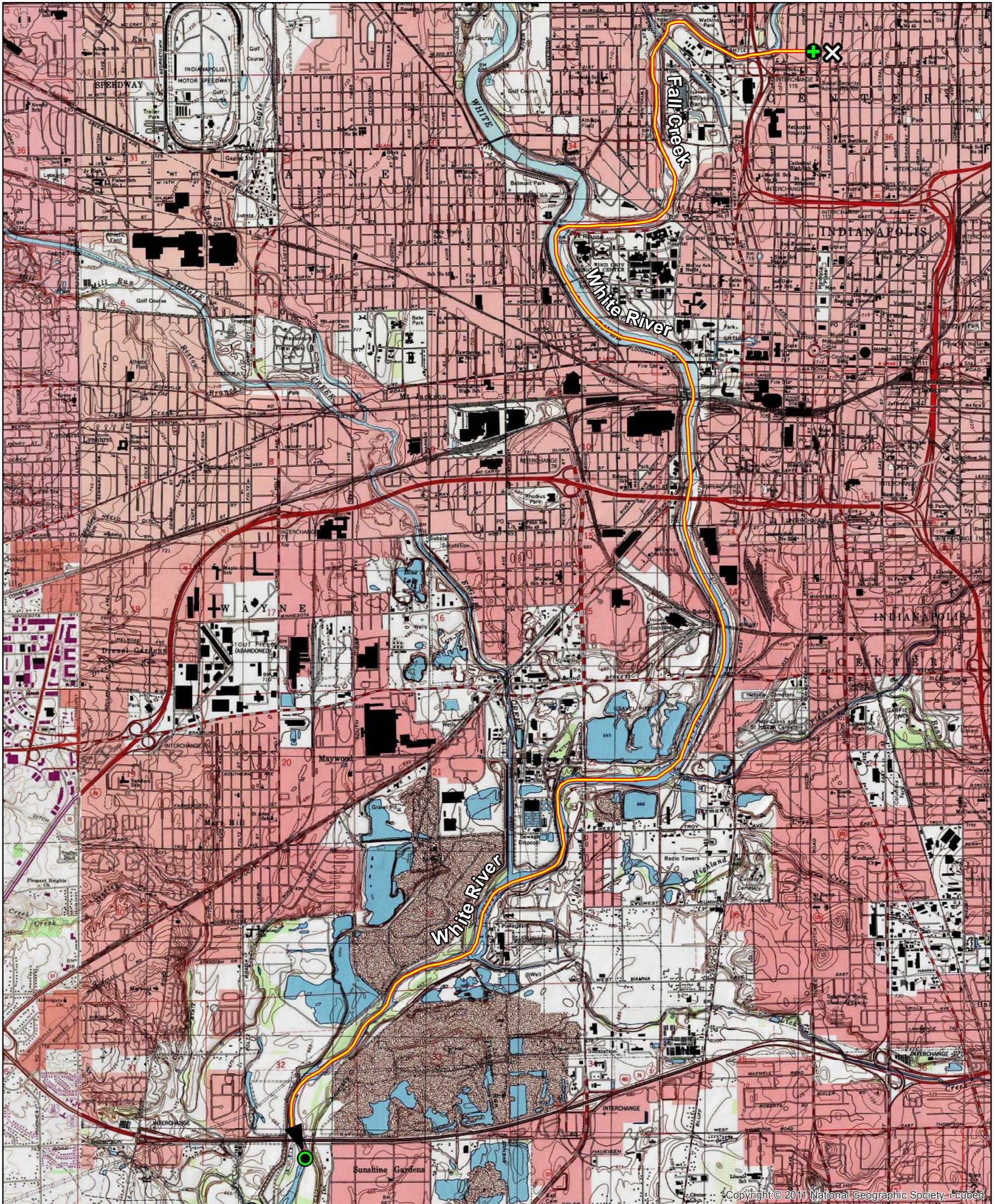
The main code that repeats over for the 4Mi Mapper model is: Buffer>Clip>Add Fields>Calculate Field>Dissolve

All models were developed by E.J. McNaughton, IDEM GIS Coordinator



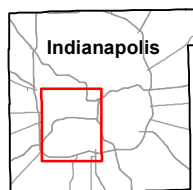
Buffer Radius
Approximate Center
60 Minute Cleaners

Indianapolis, Marion County, IN
Fifteen Mile Surface Water Map



This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By:
Kim Vedder, Office of Land Quality
Date: 04/24/2014



 Probable Point of Entry

 Target Distance Limit

 Approximate Center
60 Minute Cleaners

 Fifteen Mile Surface Water Path

Sources:
Topography - Obtained from USA Topo Maps
(http://goto.arcgisonline.com/maps/USA_Topo_Maps)
Map Projection: UTM Zone 16 N
Map Datum: NAD83

0 0.5 1 2 Miles

0 0.5 1 2 Kilometers

Marion County

Attachment B

IDEM Sample Results

Riverside and White River Wellfields

2014

Table 3
Table Showing VOC Detections For All Samples in Sample Data
Group (SDG) E2SZ9

Sample ID Well ID Depth	Sample Type	Date	Hazardous Substance	Hazardous Substance Concentration (Adjusted Concentration)	Contract Required Quantitation Limit (CRQL)	Reference
E2SZ9 RS C	Water	05/20/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. A, pp. 1-2,
E2T00 RS26 285 ft.	Water	05/20/14	Cis-1,2- DCE	0.62 ug/L	0.5 ug/L	Ref. A, pp. 3-4
E2T01 RS9 251 ft.	Water	05/20/14	Cis-1,2-DCE	0.46 ug/L *	0.5 ug/L	Ref. A, pp. 5-6
E2T02 RS29 290 ft.	Water	05/20/14	Vinyl Chloride Trans-1,2-DCE Cis-1,2-DCE TCE PCE	0.75 ug/L 0.21 ug/L * 16 ug/L 0.13 ug/L * 0.19 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. A, pp. 7-8, 1
E2T03 RS29 Duplicate	Water	05/20/14	Vinyl Chloride Trans-1,2-DCE Cis-1,2-DCE TCE PCE	0.97 ug/L 0.28 ug/L * 15 ug/L ** 0.15 ug/L * 0.24 ug/L *	0.5 ug/L 0.5 ug/L 1.3 ug/L ** 0.5 ug/L 0.5 ug/L	Ref. A, pp. 9- 12
E2T04 RS8 268 ft.	Water	05/20/14	Trans-1,2-DCE Cis-1,2-DCE TCE PCE	0.077 ug/L * 5.5 ug/L 0.089 ug/L * 0.065 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. A, pp. 13- 14
E2T05 RS7 196 ft.	Water	05/20/14	Cis-1,2-DCE	0.45 ug/L *	0.5 ug/L	Ref. A, pp. 15- 16
E2T06 RS2 Duplicate	Water	05/20/14	MTBE	0.12 ug/L *	0.5 ug/L	Ref. A, pp. 17- 18
E2T07 RS19 392 ft.	Water	05/20/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. A, pp. 19- 20
E2T08 RS18 400 ft.	Water	05/20/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. A, pp. 25- 26
E2T09 RS B	Water	05/20/14	Dichlorodifluoromethane TCE	0.30 ug/L * 0.11 ug/L *	0.5 ug/L 0.5 ug/L	Ref. A, pp. 27- 28
E2T10 RSA 97 ft.	Water	05/20/14	TCE	0.19 ug/L *	0.5 ug/L	Ref. A, pp. 29- 30
E2T11 RS22 271 ft.	Water	05/20/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. A, pp. 31- 32
E2T12 RS2 297 ft.	Water	05/20/14	MTBE	0.13 ug/L *	0.5 ug/L	Ref. A, pp. 33- 34
E2T13 IMA #1	Water	05/20/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. A, pp. 35- 36

Sample ID Well ID Depth	Sample Type	Date	Hazardous Substance	Hazardous Substance Concentration (Adjusted Concentration)	Contract Required Quantitation Limit (CRQL)	Reference
E2T14 Trip Blank	Water	05/20/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. A, pp. 37-38

* Samples have analyte concentrations below the quantitation limit (CRQL) and detected compounds are qualified as J values. Detection below the CRQL is treated as non-quantifiable for HRS purposes. Results are adjusted to "Non-Detect" (ND) using the procedure described in EPA 540-F-94-028, *Using Qualified Data to Document an Observed Release and Observed Contamination*, November 1996.

** Concentration of cis-1,2-DCE in sample E2T03 exceeded the instruments calibration range. Sample E2T03 was reanalyzed using dilution factor and the result and CRQL for cis-1,2-DCE are reported from the diluted analysis E2T03 DL.

Table 4
Table Showing VOC Detections For All Samples in Sample Data
Group (SDG) E2T15

Sample ID Well ID Depth	Sample Type	Date	Hazardous Substance	Hazardous Substance Concentration (Adjusted Concentration)	Contract Required Quantitation Limit (CRQL)	Reference
E2T15 IMA #2 370 ft.	Water	05/21/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. B, pp. 1-2
E2T16 WR3 70 ft.	Water	05/21/14	Trans-1,2-DCE 1,1-Dichloroethane Cis-1,2-DCE 1,1,1-Trichloroethane TCE PCE	0.090 ug/L * 0.58 ug/L 1.6 ug/L 0.57 ug/L 4.9 ug/L J- (4.9 ug/L) 0.035 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 3-4
E2T17 WR3 Duplicate	Water	05/21/14	Trans-1,2-DCE 1,1-Dichloroethane Cis-1,2-DCE 1,1,1-Trichloroethane TCE PCE	0.095 ug/L * 0.64 ug/L 1.8 ug/L 0.54 ug/L 4.8 ug/L J- (4.8 ug/L) 0.037 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 5-6
E2T18 WR7 77 ft.	Water	05/21/14	Cis-1,2-DCE 1,1,1-Trichloroethane TCE	0.24 ug/L * 0.031 ug/L * 0.28 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 7-8
E2T19 WR8 77 ft.	Water	05/21/14	Trans-1,2-DCE 1,1-Dichloroethane Cis-1,2-DCE 1,1,1-Trichloroethane TCE	0.073 ug/L * 0.36 ug/L * 0.88 ug/L 0.034 ug/L * 0.45 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 13- 14
E2T20 WR9 80 ft.	Water	05/21/14	1,1-Dichloroethane 1,1,1-Trichloroethane TCE	0.38 ug/L * 0.23 ug/L * 0.28 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 15- 16
E2T21 WR9 Duplicate	Water	05/21/14	1,1-Dichloroethane 1,1,1-Trichloroethane TCE	0.35 ug/L * 0.22 ug/L * 0.24 ug/L *	0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 17- 18
E2T22 Trip Blank	Water	05/21/14	Methylene Chloride	0.22 ug/L *	0.5 ug/L	Ref. B, pp. 19- 20
E2T29 RSD	Water	05/21/14	Trace VOCs	Non-Detect	0.5 ug/L	Ref. B, pp. 21- 22

* Samples have analyte concentrations below the quantitation limit (CRQL) and detected compounds are qualified as J values. Detection below the CRQL is treated as non-quantifiable for HRS purposes. Results are adjusted to "Non-Detect" (ND) using the procedure described in EPA 540-F-94-028, *Using Qualified Data to Document an Observed Release and Observed Contamination*, November 1996.

J- = The percent recoveries were low, outside the laboratory established control

limits for TCE in matrix spike (MS). The results for TCE are estimated biased low. Since TCE was positively identified, but with uncertainty in the associated numerical value, in samples E2T16 and E2T17, the reported results were adjusted using the procedure described in EPA 520-F-94-028, Using Qualified Data to Document an Observed Release and Observed Contamination, November 1996. The adjusted results are biased low.

Table 5
Key Findings Table Showing VOCs Exceeding 0.5 ug/l (CRQL
Background Detections)

Sample ID/Municipal Well ID	Sample Type	Date	Hazardous Substance	Hazardous Substance Concentration (Adjusted Concentration)	Contract Required Quantitation Limit (CRQL)	Reference
E2T00/RS26	Water	05/20/14	Cis-1,2- DCE	0.62 ug/L	0.5 ug/L	Ref. A, pp. 3-4
E2T02/RS29	Water	05/20/14	Vinyl Chloride Cis-1,2-DCE	0.75 ug/L 16 ug/L	0.5 ug/L 0.5 ug/L	Ref. A, pp. 7-8, 1
E2T03/RS29	Water	05/20/14	Vinyl Chloride Cis-1,2-DCE	0.97 ug/L 15 ug/L **	0.5 ug/L 1.3 ug/L **	Ref. A, pp. 9-12
E2T04/RS8	Water	05/20/14	Cis-1,2-DCE	5.5 ug/L	0.5 ug/L	Ref. A, pp. 13-14
E2T16/WR3	Water	05/21/14	1,1-Dichloroethane Cis-1,2-DCE 1,1,1-Trichloroethane TCE	0.58 ug/L 1.6 ug/L 0.57 ug/L 4.9 ug/L J- (4.9 ug/L)	0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 3-4
E2T17/WR3	Water	05/21/14	1,1-Dichloroethane Cis-1,2-DCE 1,1,1-Trichloroethane TCE	0.64 ug/L 1.8 ug/L 0.54 ug/L 4.8 ug/L J- (4.8 ug/L)	0.5 ug/L 0.5 ug/L 0.5 ug/L 0.5 ug/L	Ref. B, pp. 5-6
E2T19/WR8	Water	05/21/14	Cis-1,2-DCE	0.88 ug/L	0.5 ug/L	Ref. B, pp. 13-14

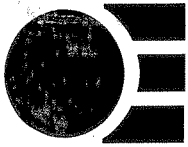
** Concentration of cis-1,2-DCE in sample E2T03 exceeded the instruments calibration range. Sample E2T03 was reanalyzed using dilution factor and the result and CRQL for cis-1,2-DCE are reported from the diluted analysis E2T03 DL.

J- = The percent recoveries were low, outside the laboratory established control limits for TCE in matrix spike (MS). The results for TCE are estimated biased low. Since TCE was positively identified, but with uncertainty in the associated numerical value, in samples E2T16 and E2T17, the reported results were adjusted using the procedure described in EPA 520-F-94-028, Using Qualified Data to Document an Observed Release and Observed Contamination, November 1996. The adjusted results are biased low.

Attachment C

Additional Subsurface Investigation Report

2131 – 2151 N. Meridian Street Site



KERAMIDA

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401 North College Avenue
Indianapolis, Indiana 46202
(317) 685-6600 • Fax (317) 685-6610
1-800-508-8034

keramida@keramida.com • www.keramida.com

**ADDITIONAL SUBSURFACE INVESTIGATION REPORT
2131 – 2151 NORTH MERIDIAN STREET
INDIANAPOLIS, INDIANA
KERAMIDA PROJECT NO. 11753**

Submitted to: **NEAR NORTH DEVELOPMENT CORPORATION**
Ms. Amy Kotzbauer, President
1800 North Meridian Street
Indianapolis, Indiana 46202

HARBOR TERRACE PARTNERS, LLC
Mr. Jeffrey Congdon
152 East 22nd Street, Suite A
Indianapolis, Indiana 46202

Submitted by: **KERAMIDA ENVIRONMENTAL, INC.**
401 North College Avenue
Indianapolis, Indiana 46202
(317) 685-6600

Frank D. West, L.P.G.
Senior Project Manager

Reviewed by: Andrew A. Gremos, L.P.G., C.H.M.M.
Senior Vice President

November 10, 2006

**ADDITIONAL SUBSURFACE INVESTIGATION REPORT
2131 – 2151 NORTH MERIDIAN STREET
INDIANAPOLIS, INDIANA
KERAMIDA PROJECT NO. 11753**

Submitted to:

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Ms. Amy Kotzbauer, President
1800 North Meridian Street
Indianapolis, Indiana 46202

and

HARBOR TERRACE PARTNERS, LLC

Mr. Jeffrey Congdon
152 East 22nd Street, Suite A
Indianapolis, Indiana 46202

Submitted by:

KERAMIDA ENVIRONMENTAL, INC.

401 North College Avenue
Indianapolis, Indiana 46202
(317) 685-6600

November 10, 2006

EXECUTIVE SUMMARY

KERAMIDA Environmental, Inc. (KERAMIDA) was retained by Near North Development Corporation and Harbor Terrace Partners, LLC (Client) to conduct an Additional Subsurface Investigation (Investigation) of the odd-numbered parcels from 2131 through 2151 North Meridian Street, Indianapolis, Marion County, Indiana (Site). The purpose of the Investigation was to gather additional information on the environmental condition of the Site. The Investigation was conducted according to the Indiana Department of Environmental Management (IDEM) Risk Integrated System of Closure (RISC) guidelines.

The scope of work completed during the Investigation included installation of 11 soil borings; replacement of previously installed piezometer P-1; soil sampling and analysis from the on-Site borings inside the on-Site building; groundwater sampling and analysis from the 11 borings, piezometer P-1, and two existing monitoring wells; and depth to groundwater measurements for groundwater flow determination. The soil and groundwater samples were analyzed for volatile organic compounds (VOCs).

The results of the Investigation revealed the following:

- Soil at the Site is not impacted above the RISC Residential Default Closure Levels.
- Shallow groundwater flow is from northeast to southwest across the Site.
- Tetrachloroethene (PERC) concentrations in groundwater are highest at the northeast corner of the Site along the upgradient property boundary, and they decrease as groundwater moves downgradient to the southwest.
- Off-Site groundwater to the southeast (cross-gradient) does not contain VOCs.
- Off-Site groundwater to the southwest (downgradient) contains PERC above the Residential Default Closure Level.

These results support the conclusion that the chlorinated organics in Site groundwater are moving onto the Site from an upgradient source, and are not from an on-Site source. KERAMIDA recommends this report, along with the initial Phase I and Phase II reports for the Site, be submitted to IDEM along with a request for investigation into the source of the contamination and the party responsible for remediation of the contamination.

In the interim, KERAMIDA recommends Site use and development be planned in light of potential exposure to the groundwater contaminants by future Site users. It is KERAMIDA's understanding that the Site is supplied with potable water by the municipal water supply system, and no groundwater wells are present on-Site. This minimizes the potential for future Site users to directly contact the contaminated groundwater. However, PERC and related contaminants are volatile compounds known to volatilize out of groundwater, through the soil column, and into overlying structures. This mechanism is known as vapor intrusion. IDEM has developed procedures and screening levels to determine if this potential exposure pathway needs to be addressed further at properties with soil or groundwater contaminated with VOCs. A comparison of the detected levels of PERC and trichloroethene (TCE) in Site soil and groundwater to the IDEM groundwater screening levels for vapor intrusion indicate the following:

- The levels of PERC in soil beneath the on-Site building are below the IDEM vapor intrusion soil screening levels for both residential and commercial land use.
- The levels of PERC in groundwater beneath the on-Site building and across the Site are above the IDEM vapor intrusion groundwater screening levels for both residential and commercial land use.
- The level of TCE in groundwater at MW-2 is above the IDEM vapor intrusion groundwater screening levels for both residential and commercial land use.

The IDEM vapor intrusion guidance does not contain screening levels for cis-1,2-dichloroethene (cDCE), therefore, a quantitative evaluation of potential vapor intrusion issues from this compound cannot be conducted.

Based on these results, KERAMIDA recommends further evaluation of the vapor intrusion pathway by conducting a soil gas survey to check for PCE vapor in the soil gas beneath the building. If PCE is detected at concentrations in excess soil gas screening levels, installation of a vapor abatement system should be considered in any plans for use of the current on-Site building, or future Site development. Vapor abatement systems can be retrofitted to existing buildings, as well as incorporated into building plans and specifications for new construction.

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2	Boring Logs and Piezometer Construction Diagrams
3	Laboratory Report and Chain-of-Custody Documentation

**ADDITIONAL SUBSURFACE INVESTIGATION REPORT
2131 - 2151 NORTH MERIDIAN STREET
INDIANAPOLIS, INDIANA
KERAMIDA PROJECT NO. 11753**

1.0 INTRODUCTION

KERAMIDA Environmental, Inc. (KERAMIDA) was retained by Harbor Terrace Partners, LLC (Client) to conduct an Additional Subsurface Investigation (Investigation) of the odd-numbered parcels from 2131 through 2151 North Meridian Street, Indianapolis, Marion County, Indiana (Site). The Site location is shown on Figure 1. The purpose of the Investigation was to gather additional information on the environmental condition of the Site. The Investigation was conducted according to the Indiana Department of Environmental Management (IDEM) Risk Integrated System of Closure (RISC) guidelines (IDEM 2001).

2.0 BACKGROUND

The Site consists of five parcels of land encompassing approximately 0.9 acres (see Figure 2). The parcel numbers are 2131, 2133, 2137, 2139, and 2151 North Meridian Street. A former, but now vacant, commercial building is present on the 2133 and 2137 parcels. The remaining parcels are either paved or grass-covered. Surrounding land use is mixed commercial/industrial along Meridian Street, and residences are located east-adjacent to the Site.

KERAMIDA completed a Phase I Environmental Site Assessment (Phase I) of the property in 2004. The Phase I revealed both on- and off-Site potential sources of subsurface contamination including historical printing operations on-Site, an apparent petroleum underground storage tank (UST) located on the south adjacent property, and nearby active and historic dry cleaners, gasoline service stations, and auto body shops.

KERAMIDA conducted an initial Phase II Environmental Assessment (Phase II) in May 2005 which included on-Site soil and groundwater sampling. The samples were analyzed for compounds of potential concern (COPCs) related to the potential sources of contamination identified during the Phase I. The analytical data were compared to the RISC Residential Default Closure Levels and the Commercial/Industrial Default Closure Levels. The results

revealed the presence of PERC in groundwater at concentrations greater than the Residential and Commercial/Industrial Default Closure Levels. Potential sources of the PERC are the existing Penn 60 Minute Cleaners located directly upgradient to the northeast of the Site (see Figure 2), and historical on-Site printing operations. Additional soil and groundwater sampling was recommended to identify the PERC source and the extent of the groundwater plume. This report documents the methods and results of the additional investigation tasks completed at the Site by KERAMIDA between September 29 and October 9, 2006.

3.0 INVESTIGATION SCOPE AND METHODS

The scope of work completed during the Investigation included installation of 11 soil borings at on- and off-Site locations; replacement of previously installed piezometer P-1; soil sampling and analysis from the borings inside the on-Site building; groundwater sampling and analysis from the 11 borings, piezometer P-1, and two existing monitoring wells; and depth to groundwater measurements for groundwater flow determination. The methods used to conduct these tasks are discussed in the sections below.

Prior to mobilizing to the Site, KERAMIDA contacted the Indiana Underground Plant Protection Services to have the public underground utilities marked at the Site and surrounding properties. KERAMIDA also prepared a Site-specific health and safety plan (HASP) for the Investigation activities. The field manager reviewed the HASP with all field personnel each day prior to initiation of field activities.

3.1 SOIL BORING INSTALLATION AND SOIL SAMPLING

All soil boring and sampling was conducted according to the KERAMIDA Standard Operating Procedures (SOPs) presented in Attachment 1. The soil borings and replacement piezometer were installed using a Geoprobe® direct-push drill rig at the locations shown on Figure 2:

- Borings KB-14 and KB-15 were installed inside the on-Site building near the location of the former printing operation to investigate this area as a potential source of PERC in groundwater.

- Borings KB-9 through KB-13 were installed north of the building on parcels 2139 and 2151 to delineate upgradient groundwater quality and evaluate Penn 60 Minute Cleaners as a potential source of PERC.
- Borings KB-7 and KB-8 were installed at the south-adjacent off-Site parcel (2127 N. Meridian Street) to delineate downgradient groundwater quality.
- Borings KB-5 and KB-6 were installed at 2132 N. Pennsylvania Street, east-adjacent to the Site, to investigate groundwater quality in that residential area.
- Piezometer P-1 was installed at the southeast corner of the Site to replace previously installed Piezometer P-1, which was destroyed by unknown means.

The borings were extended to the first encountered groundwater or to probe refusal, whichever occurred first. Continuous soil cores were extracted from each boring and described on the boring logs presented in Attachment 2. Each soil core was screened for organic vapors at two-foot intervals using a flame-ionization detector (FID). At borings KB-14 and KB-15 inside the on-Site building, soil samples were selected for laboratory analysis from the 0 to 1 foot depth interval, and from the unsaturated interval just above the water table.

The soil samples were placed in appropriate laboratory-supplied containers, packed on ice, and delivered to Heritage Commercial Laboratory (Heritage) in Indianapolis, Indiana. The samples were analyzed for VOCs by U.S. Environmental Protection Agency (USEPA) Method 8260B.

3.2 GROUNDWATER SAMPLING AND ANALYSIS

Groundwater samples were collected from the borings on September 29, October 2, and October 9, 2006. The samples were collected using dedicated tubing and a check valve system. The samples were collected directly into laboratory-supplied containers, packed on ice, and transported to Heritage for analysis for VOCs by USEPA Method 8260B.

Replacement piezometer P-1 was installed at the southeast corner of the Site on September 29, 2006, to a total depth of approximately 22 feet below ground surface (bgs). P-1 was constructed of one-inch diameter PVC screen and riser. Native sands were allowed to collapse around the piezometer screen and riser and additional clean silica sand was placed to within approximately one-foot of ground surface. Granular bentonite was placed atop the sand to prevent surface

water infiltration into the piezometer. The piezometer construction diagram is presented in Attachment 2.

The top-of-casing elevations were surveyed to within 0.01-foot accuracy and depth to water was measured in P-1 and existing monitoring wells MW-1 and MW-2 on September 29, 2006. Groundwater samples were then collected using dedicated tubing and a check valve system in P-1 and dedicated bailers in MW-1 and MW-2. The samples were collected directly into laboratory-supplied containers, packed on ice, and transported to Heritage for analysis for VOCs by USEPA Method 8260B.

All soil cuttings, purged groundwater, and decontamination water were containerized in 55-gallon drums, which were labeled and stored on-Site awaiting proper disposal.

4.0 INVESTIGATION RESULTS

The following sections present the hydrogeological findings and the soil and groundwater analytical results of the Investigation. The soil boring logs are presented in Attachment 2, and the laboratory analytical report is presented in Attachment 3.

4.1 SITE GEOLOGY AND HYDROGEOLOGY

Soils observed in the borings consisted of approximately 5 to 8 feet of loamy fill material, underlain by a gravelly sand that extended to 20 feet bgs, the maximum depth of soil exploration. Wet soils were generally encountered at between approximately 16 to 18 feet bgs.

Depth to groundwater in P-1, MW-1, and MW-2 ranged from 15.92 to 18.25 feet bgs. Groundwater was determined to flow to the southwest at a gradient of approximately 0.001. The groundwater elevation data is presented in Table 1, and the groundwater potentiometric surface is depicted on Figure 3.

4.2 SOIL ANALYTICAL RESULTS

The soil analytical results are summarized in Table 2 and on Figure 4. Soil results from the initial Phase II investigation are also depicted on Figure 4 to provide a complete picture of soil conditions. Naphthalene was detected in soil sample KB-15 at 16 to 18 feet bgs at a concentration below the Residential and Commercial/Industrial Default Closure Levels. PERC was detected in both soil samples from KB-14 at concentrations below the Residential and Commercial/Industrial Default Closure Levels. No other VOCs were detected in soil.

4.3 GROUNDWATER ANALYTICAL RESULTS

The groundwater analytical results are summarized in Table 3 and on Figure 5. Groundwater results from the initial Phase II investigation are also depicted on Figure 5 to provide a complete picture of groundwater conditions. PERC was detected in 10 groundwater samples. All of the detected PERC levels were above the RISC Residential Default Closure Level. PERC levels at KB-9, KB-10, KB-11, KB-13, KB-14, MW-1, and MW-2 were above the Commercial/Industrial Default Closure Level. The highest PERC concentration was detected at MW-2 along the upgradient (northeast) property boundary.

Trichloroethene (TCE), a PERC degradation product, was detected in 5 groundwater samples. The TCE level detected at MW-2 was above the Residential Default Closure Level. The highest TCE concentration was detected at MW-2 along the upgradient (northeast) property boundary. Cis-1,2-dichloroethene (cDCE), also in the PERC degradation chain, was detected at KB-13 at a concentration below the Residential Default Closure Level. No other groundwater samples contained cDCE.

Methyl tert-butyl ether (MTBE) was detected at MW-1 at a concentration below the Residential Default Closure Level. No other samples contained MTBE. MTBE is a gasoline additive. Other VOCs detected in one or more groundwater samples included chloroform, methylene chloride, and toluene. All detected concentrations of these compounds were below their Residential Default Closure Levels. These compounds are common laboratory artifacts.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the additional investigation activities reveal the following:

- Soil at the Site is not impacted above the RISC Residential Default Closure Levels. The low-level PERC concentrations detected in KB-14 are believed to result from intrusion of PERC vapor from the underlying groundwater plume. In contrast, PERC was not detected in the soil from KB-15, which exhibited a significantly lower groundwater PERC concentration.
- Shallow groundwater flow is from northeast to southwest across the Site (Figure 3).
- PERC concentrations in groundwater are highest at the northeast corner of the Site along the upgradient property boundary, and they decrease as groundwater moves downgradient to the southwest (Figure 5).
- Off-Site groundwater to the southeast (cross-gradient) does not contain VOCs.
- Off-Site groundwater to the southwest (downgradient) contains PERC above the Residential Default Closure Level.

These results support the conclusion that the chlorinated organics in Site groundwater are moving onto the Site from an upgradient source, and are not from an on-Site source. One possible source is an active dry cleaner (Penn 60-Minute dry cleaner) located directly upgradient from the Site. Figure 6 depicts the location of the Site and groundwater flow relative to the active Penn 60-Minute dry cleaner. KERAMIDA recommends this report, along with the initial Phase I and Phase II reports for the Site, be submitted to IDEM along with a request for investigation into the source of the contamination and the party responsible for remediation of the contamination.

In the interim, KERAMIDA recommends Site use and development be planned in light of potential exposure to the groundwater contaminants by future Site users. It is KERAMIDA's understanding that the Site is supplied with potable water by the municipal water supply system, and no groundwater wells are present on-Site. This minimizes the potential for future Site users to directly contact the contaminated groundwater. However, PERC and related contaminants are volatile compounds known to volatilize out of groundwater, through the soil column, and into overlying structures. This mechanism is known as vapor intrusion. IDEM has developed procedures and screening levels to determine if this potential exposure pathway needs to be

addressed further at properties with soil or groundwater contaminated with VOCs (IDEM 2006). A comparison of the detected levels of PERC and TCE in Site soil and groundwater to the IDEM groundwater screening levels for vapor intrusion indicate the following:

- The levels of PERC in soil beneath the on-Site building are below the IDEM vapor intrusion soil screening levels for both residential and commercial land use.
- The levels of PERC in groundwater beneath the on-Site building and across the Site are above the IDEM vapor intrusion groundwater screening levels for both residential and commercial land use.
- The level of TCE in groundwater at MW-2 is above the IDEM vapor intrusion groundwater screening levels for both residential and commercial land use.

The IDEM vapor intrusion guidance does not contain screening levels for cDCE, therefore, a quantitative evaluation of potential vapor intrusion issues from this compound cannot be conducted.

Based on these results, KERAMIDA recommends further evaluation of the vapor intrusion pathway by conducting a soil gas survey to check for PCE vapor in the soil gas beneath the building. If PCE is detected at concentrations in excess soil gas screening levels, installation of a vapor abatement system should be considered in any plans for use of the current on-Site building, or future Site development. Vapor abatement systems can be retrofitted to existing buildings, as well as incorporated into building plans and specifications for new construction.

6.0 REFERENCES

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TABLES

Table 1
Groundwater Elevation Data
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 11753

Well No.	TOC Elevation (feet amsl)	Date Gauged	Depth to Water from TOC (feet)	Groundwater Elevation (feet amsl)
MW-1	101.56	9/29/2006	18.25	83.31
MW-2	99.41	9/29/2006	15.92	83.49
P-1	100.39	9/29/2006	17.04	83.35

Notes:

amsl - above mean sea level

bgs - below ground surface

TOC - top of well casing

Table 2
Soil VOC Analytical Results (mg/kg)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Acetone	Acrolein	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane (Methyl Bromide)	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene
KB-14 (0-1)	10/9/2006	0-1	A748714	<0.021	<0.026	<0.026	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.0053	<0.0053	<0.0053
KB-14 (16-18)	10/9/2006	16-18	A748715	<0.022	<0.027	<0.027	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.011	<0.0054	<0.0054	<0.0054
KB-15 (0-1)	10/9/2006	0-1	A748716	<0.022	<0.027	<0.027	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.011	<0.0054	<0.0054	<0.0054
KB-15 (16-18)	10/9/2006	16-18	A748717	<0.021	<0.026	<0.026	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.0053	<0.0053	<0.0053
RISC Default Closure Level - Residential ⁽¹⁾				28	0.00027	NA	0.034	NA	NA	0.51	0.6	0.052	NA	NA	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				370	0.25	NA	0.35	NA	NA	0.51	2.7	0.70	NA	NA	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

mg/kg = milligrams per kilogram

NA = Not Available

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 2
Soil VOC Analytical Results (mg/kg)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane (Methyl Chloride)	2-Chlorotoluene	4-Chlorotoluene	2-Chloroethyl vinyl ether	1,2-Dibromo-3-Chloropropane	1,2-Dibromooethane
KB-14 (0-1)	10/9/2006	0-1	A748714	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
KB-14 (16-18)	10/9/2006	16-18	A748715	<0.0054	<0.0054	<0.0054	<0.0054	<0.011	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (0-1)	10/9/2006	0-1	A748716	<0.0054	<0.0054	<0.0054	<0.0054	<0.011	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (16-18)	10/9/2006	16-18	A748717	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
RISC Default Closure Level - Residential ⁽¹⁾				10	0.066	1.3	NA	0.65	0.47	NA	NA	NA	NA	NA	0.00034
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				82	0.29	27	NA	10	4.7	NA	NA	NA	NA	NA	0.0096

Notes:

Samples analyzed using EPA SW-846 Method 8260B

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Table 2
Soil VOC Analytical Results (mg/kg)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Dibromomethane (Methylene Bromide)	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	trans-1,4-Dichloro-2-butene	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane
KB-14 (0-1)	10/9/2006	0-1	A748714	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
KB-14 (16-18)	10/9/2006	16-18	A748715	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.011	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (0-1)	10/9/2006	0-1	A748716	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.011	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (16-18)	10/9/2006	16-18	A748717	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
RISC Default Closure Level - Residential ⁽¹⁾				NA	17	2.3	2.2	NA	NA	5.6	0.024	0.058	0.4	0.68	0.03
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				NA	220	8.9	3.4	NA	NA	58	0.15	42	5.8	14	0.25

Notes:

Samples analyzed using EPA SW-846 Method 8260B

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Table 2
Soil VOC Analytical Results (mg/kg)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	Ethyl methacrylate	2-Hexanone	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	p-Isopropyltoluene
KB-14 (0-1)	10/9/2006	0-1	A748714	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
KB-14 (16-18)	10/9/2006	16-18	A748715	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (0-1)	10/9/2006	0-1	A748716	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (16-18)	10/9/2006	16-18	A748717	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
RISC Default Closure Level - Residential ⁽¹⁾				NA	NA	NA	0.04	0.04	13	NA	NA	24	NA	11	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				NA	NA	NA	0.2	0.2	160	NA	NA	66	NA	42	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

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Table 2
Soil VOC Analytical Results (mg/kg)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Methylene chloride	Methyl Ethyl Ketone (2-Butanone)	Methyl(tert) butyl ether (MTBE)	4-Methyl-2-pentanone (MIBK)	Naphthalene	n-Propylbenzene	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene
KB-14 (0-1)	10/9/2006	0-1	A748714	<0.0053	<0.011	<0.0053	<0.011	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	0.0068	<0.0053	<0.0053
KB-14 (16-18)	10/9/2006	16-18	A748715	<0.0054	<0.011	<0.0054	<0.011	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	0.016	<0.0054	<0.0054
KB-15 (0-1)	10/9/2006	0-1	A748716	<0.0054	<0.011	<0.0054	<0.011	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (16-18)	10/9/2006	16-18	A748717	<0.0053	<0.011	<0.0053	<0.011	0.0063	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
RISC Default Closure Level - Residential ⁽¹⁾				0.023	35	0.18	20	0.7	36	3.5	0.053	0.007	0.058	12	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				1.8	250	3.2	75	170	300	550	0.85	0.11	0.64	96	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

mg/kg = milligrams per kilogram

NA = Not Available

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Table 2
Soil VOC Analytical Results (mg/kg)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl acetate	Vinyl chloride	Xylenes, Total
KB-14 (0-1)	10/9/2006	0-1	A748714	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
KB-14 (16-18)	10/9/2006	16-18	A748715	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (0-1)	10/9/2006	0-1	A748716	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
KB-15 (16-18)	10/9/2006	16-18	A748717	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
RISC Default Closure Level - Residential ⁽¹⁾				5.3	1.9	0.03	0.057	NA	NA	2.5	0.61	2.3	0.013	170
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				77	280	0.3	0.35	NA	NA	170	68	430	0.027	170

Notes:

Samples analyzed using EPA SW-846 Method 8260B

mg/kg = milligrams per kilogram

NA = Not Available

VOCs = Volatile Organic Compounds

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Table 3
Groundwater VOC Analytical Results (ug/L)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Acetone	Acrolein	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane (Methyl Bromide)	n-Butylbenzene	sec-Butylbenzene
KB-5W (18-22')	9/29/2006	18-22	A748105	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-6W (18-22')	9/29/2006	18-22	A748106	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-7W (18-22')	9/29/2006	18-22	A748107	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-8W (18-22')	9/29/2006	18-22	A748108	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-9W (18-23')	9/29/2006	18-22	A748109	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W (18-22')	9/29/2006	18-22	A748110	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W (18-22') DUP	9/29/2006	18-22	A748111	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W (19-23)	10/9/2006	19-23	A748718	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-15W (19-22)	10/9/2006	19-23	A748719	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
RISC Default Closure Level - Residential ⁽¹⁾				690	0.055	NA	5	NA	NA	80	80	11	NA	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				92,000	51	NA	52	NA	NA	80	360	140	NA	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 3
Groundwater VOC Analytical Results (ug/L)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	tert-Butylbenzene	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	2-Chlorotoluene	4-Chlorotoluene	2-Chloroethyl vinyl ether
KB-5W (18-22')	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-6W (18-22')	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-7W (18-22')	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-8W (18-22')	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-9W (18-23')	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.3	<1.0	<1.0	<1.0	<1.0
KB-10W (18-22')	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W (18-22') DUP	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.2	<1.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.9	<1.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W (19-23)	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-15W (19-22)	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	<1.0	<1.0	<1.0	<1.0
RISC Default Closure Level - Residential ⁽¹⁾														
				NA	1,300	5	100	NA	62	80	NA	NA	NA	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾														
				NA	10,000	22	2,000	NA	990	1,000	NA	NA	NA	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

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Table 3
Groundwater VOC Analytical Results (ug/L)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)	Dibromomethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	trans-1,4-Dichloro-2-butene	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene
KB-5W (18-22')	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-6W (18-22')	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-7W (18-22')	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-8W (18-22')	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-9W (18-23')	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-10W (18-22')	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-10W (18-22') DUP	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-14W (19-23)	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
KB-15W (19-22)	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0
RISC Default Closure Level - Residential ⁽¹⁾														
				NA	0.050	NA	600	80.0	75	NA	NA	990	5	7
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾														
				NA	1.4	NA	9,200	310	120	NA	NA	10,000	31	5,100

Notes:

Samples analyzed using EPA SW-846 Method 8260B

ug/L = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 3
Groundwater VOC Analytical Results (ug/L)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	Ethyl methacrylate	2-Hexanone
KB-5W (18-22')	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-6W (18-22')	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-7W (18-22')	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-8W (18-22')	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-9W (18-23')	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-10W (18-22')	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-10W (18-22') DUP	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-13	10/2/2006	18-22	A748114	1.8	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-14W (19-23)	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
KB-15W (19-22)	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
RISC Default Closure Level - Residential ⁽¹⁾														
				70	100	5	NA	NA	NA	5.6	5.6	700	NA	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾														
				1,000	2,000	42	NA	NA	NA	29	29	10,000	NA	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 3
Groundwater VOC Analytical Results (ug/L)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	p-Isopropyltoluene	Methylene chloride	Methyl-ethyl-ketone (MEK) (2-Butanone)	Methyl-tert-butyl ether (MTBE)	4-Methyl-2-pentanone (MIBK)	Naphthalene	n-Propylbenzene	Styrene
KB-5W (18-22')	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-6W (18-22')	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	1	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-7W (18-22')	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-8W (18-22')	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-9W (18-23')	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-10W (18-22')	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-10W (18-22') DUP	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	3.7	<10	2	<10	<1.0	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-14W (19-23)	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
KB-15W (19-22)	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0
RISC Default Closure Level - Residential ⁽¹⁾				11	0.85	830	NA	5.0	8,400	40	2,200	8.3	310	100
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				31	2.9	10,000	NA	380	61,000	720	8,200	2,000	4100	20,000

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 3
Groundwater VOC Analytical Results (ug/L)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane
KB-5W (18-22')	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-6W (18-22')	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-7W (18-22')	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-8W (18-22')	9/29/2006	18-22	A748108	<1.0	<1.0	9.6	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-9W (18-23')	9/29/2006	18-22	A748109	<1.0	<1.0	130	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W (18-22')	9/29/2006	18-22	A748110	<1.0	<1.0	200	1.1	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	<1.0
KB-10W (18-22') DUP	9/29/2006	18-22	A748111	<1.0	<1.0	160	1.1	<1.0	<1.0	<1.0	<1.0	1	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	41	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	18	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	290	<1.0	<1.0	<1.0	<1.0	<1.0	3.2	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	330	<1.0	<1.0	<1.0	<1.0	<1.0	3.2	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	770	<1.0	<1.0	<1.0	<1.0	<1.0	27	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	2,400	<1.0	<1.0	<1.0	<1.0	<1.0	24	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W (19-23)	10/9/2006	19-23	A748718	<1.0	<1.0	180	1.2	<1.0	<1.0	<1.0	<1.0	1.7	<1.0	<1.0
KB-15W (19-22)	10/9/2006	19-23	A748719	<1.0	<1.0	21	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
RISC Default Closure Level - Residential ⁽¹⁾														
				6.9	0.9	5	1,000	NA	70	200	5	5	NA	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾														
				110	14	55	8,200	NA	1,000	29,000	50	31	NA	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 3
Groundwater VOC Analytical Results (ug/L)
2131-2151 North Meridian Street
Indianapolis, Indiana
KERAMIDA Project No. 11753

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl acetate	Vinyl chloride	Xylenes, (Total)
KB-5W (18-22')	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<2.0
KB-6W (18-22')	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<2.0
KB-7W (18-22')	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<2.0
KB-8W (18-22')	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<2.0
KB-9W (18-23')	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<2.0
KB-10W (18-22')	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<2.0
KB-10W (18-22') DUP	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<2.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<2.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<2.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	<1.0	<2.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	<2.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<2.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<2.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<2.0
KB-14W (19-23)	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<2.0
KB-15W (19-22)	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<2.0
RISC Default Closure Level - Residential ⁽¹⁾								
				16	16	550	2.0	10,000
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾								
				5,100	5,100	100,000	4.0	20,000

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

ATTACHMENT 1

KERAMIDA STANDARD OPERATING PROCEDURES

**STANDARD OPERATING PROCEDURES
FOR
PUSH-PROBE SOIL SAMPLING**

Prepared by:

**KERAMIDA ENVIRONMENTAL, INC.
401 North College Avenue
Indianapolis, Indiana 46202
317/685-6600**

MATERIALS

Field Log Book
Latex or nitrile gloves
Munsel chart
Plastic bags
Plastic sheeting
Photoionization detector (PID) or
flame ionization detector (FID)
Push-Probe Drill Rig
Appropriate Personal Protective Equipment (PPE)
Sample kit (cooler, containers, and ice)
Sample labels and indelible marker

PROCEDURES

1. Place a clean piece of plastic sheeting over the work area.
2. Place clean nitrile or latex vinyl examination gloves on hands.
3. Obtain discrete soil samples from the borings using either a 2-inch diameter, 4-foot long or a 1.5-inch diameter, 2-foot long stainless steel sampler equipped with dedicated, disposable plastic liners from the push-probe operator.
4. Once the sampler is opened, classify the soils using the U.S. Department of Agriculture and KERAMIDA Soil Description systems. Classify the soil samples for lithology, moisture content, odor, staining, color (identify with Munsel Chart) and any other significant characteristic.
5. Collect samples from each two-foot interval, unless otherwise specified in the site-specific Sampling and Analysis Plan (SAP) or Quality Assurance Project Plan (QAPP).
6. Once the sample is classified, split the sample longitudinally into two equal portions: one for field screening and the other for laboratory screening. If the sample will likely be submitted for laboratory analysis of volatile organic compounds (VOCs), transfer a portion of the laboratory screening aliquot directly into a new, clean and labeled sample container obtained from the laboratory. Seal the container and immediately place the container on ice in a cooler. Place the remainder of both sample aliquots into separate, new, clean and labeled plastic bags. Immediately place the laboratory screening aliquot on ice in a cooler.
7. Allow the field screening aliquot to sit for 10 to 15 minutes to allow organic vapors to equilibrate in the air space of the bag. All field screening samples must be treated identically to ensure accurate comparisons. For example, if one field screening sample is placed in the sun to warm then all samples are placed in the sun.

8. Field screen the volatilized sample using an appropriate, calibrated photoionization detector (PID) or a flame-ionization detector (FID) depending on the suspected contaminants. FID instruments are more sensitive to the presence of heavier organic compounds such as polynuclear aromatic hydrocarbons. Ensure the selected instrument is properly calibrated in accordance with the methods presented in its respective operations manual. At a minimum, the instrument should be “bump checked” once per day. The samples are field screened by inserting the PID or FID probe into the plastic bag, while the bag remains closed. Record the maximum reading on the boring log and/or in the field log book.
9. At the completion of the field screening process, determine which, if any, of the sample intervals will be sent to the laboratory for analysis. All samples that are *not* sent to the laboratory will be disposed of in accordance with the site-specific SAP or QAPP.
10. Transfer the laboratory screening aliquot to the appropriate laboratory provided glass sample containers using clean nitrile or latex gloves.
11. The sample containers should be sealed, labeled, and placed on ice in a cooler maintaining a temperature of 4°C., in anticipation of laboratory analysis.
12. Complete the chain-of-custody form with the appropriate sampling information.
13. Keep detailed notes in the field logbook per KERAMIDA’s Field SOP for Note Taking and Log Book Entries.

**STANDARD OPERATING PROCEDURES
FOR
FIELD SCREENING OF SOIL SAMPLES**

PREPARED BY:

**KERAMIDA ENVIRONMENTAL, INC.
401 North College Avenue
Indianapolis, Indiana 46202
317/685-6600**

MATERIALS

Latex or nitrile gloves
Plastic sheeting
Plastic bags
Photoionization detector (PID) and/or
Flame Ionization Detector (FID)
Munsel Chart

PROCEDURES

1. Place a clean piece of plastic sheeting over the work area.
2. Classify soil samples using the U.S. Department of Agriculture and KERAMIDA Soil Description Systems. Classify the soil samples for lithology, moisture content, odor, staining, color (identify with Munsel Chart) and any other significant characteristic.
3. Once the sample is classified, split the sample into two equal portions (longitudinally if it is a soil core): one for field screening and the other for laboratory screening. Place one portion of the sample into a new, clean and labeled plastic bag for field screening and seal the bag; place the other portion of the sample into a new, clean and labeled sample container obtained from the laboratory and seal the container.
4. Immediately place the laboratory container sample on ice in a cooler. Allow the field screening sample to sit for 10 to 15 minutes to allow organic vapors to equilibrate in the air space of the bag. All field screening samples must be treated identically to ensure accurate comparisons. For example, if one field screening sample is placed in the sun to warm then all samples are placed in the sun.
5. Field screen the volatilized sample using an appropriate, calibrated photoionization detector (PID) or a flame-ionization detector (FID) depending on the suspected contaminants. FID instruments are more sensitive to the presence of heavier organic compounds such as polynuclear aromatic hydrocarbons. Ensure the selected instrument is properly calibrated in accordance with the methods presented in its respective operations manual. At a minimum, the instrument should be "bump checked" once per day. The samples are field screened by inserting the PID or FID probe into the plastic bag, while the bag remains closed. Record the maximum reading on the boring log and/or in the field log book.
6. At the completion of the field screening process, determine which, if any, of the sample intervals will be sent to the laboratory for analysis. All samples that are *not* sent to the laboratory will be disposed of in accordance with the site-specific Sampling and Analysis Plan (SAP) or Quality Assurance Project Plan (QAPP).
7. Keep detailed notes in the field logbook per KERAMIDA's Field SOP for Note Taking and Log Book Entries.

**STANDARD OPERATING PROCEDURES
FOR
PUSH-PROBE GROUNDWATER SAMPLING
USING A PERISTALTIC PUMP**

Prepared by:

**KERAMIDA ENVIRONMENTAL, INC.
401 North College Avenue
Indianapolis, Indiana 46202
317/685-6600**

MATERIALS

Field book
Latex or nitrile gloves
Peristaltic pump (Geopump)
Polyethylene tubing
Silicon tubing
Sample kit (cooler, containers and ice)
Sample labels and indelible markers
Pocketknife or scissors
Appropriate personal protective equipment (PPE)

PROCEDURES

1. Place clean latex or nitrile examination gloves on hands.
2. Advance Geoprobe® 2-inch diameter water sampler equipped with a 1-inch diameter, 41-inch long, stainless steel screen to the desired depth. Retract the 2-inch outer sheath while maintaining the screen depth. Alternatively, a temporary 1-inch diameter, 5-foot, PVC screen with a PVC riser may be inserted into the open borehole in cases where groundwater sample volume may be limited.
3. Assemble the peristaltic pump per the operating manual instructions that accompany it.
4. Attach Silicon tubing at the pump intake-only through the head of the peristaltic pump.
5. At the pump intake, attach polyethylene tubing to the silicon tubing. The polyethylene tubing should be long enough to extend to the bottom of the water sampler. At the pump discharge end of the pump, attach a short length of polyethylene tubing.
6. Turn on the pump and purge three screen volumes (approximately one-half gallon) of water from the water sampler. The purge water should be contained in a bucket for proper disposal. If the sample is exceptionally silty, purge the system into a bucket until it clears enough for sampling.
7. Following purging activities, remove the tubing from the water sampler for volatile organic compound (VOC) sample collection. Collect the VOC samples using a stainless steel or disposable, polyethylene mini-bailer. Remove all air bubbles from the vial and minimize agitation. If bubbles persist, VOC samples may be taken in unpreserved 40ml vials. Note this on the chain-of-custody form as it changes the holding time for the sample.
8. Replace the disposable tubing into the water sampler to collect the remaining organic and inorganic samples. Turn on the pump and draw the water from the water sampler, through the pump, and into the appropriate sample container.

9. This is the recommended sequence of sample collection:

- In-situ measurements (e.g., temperature, pH, specific conductance)
- Field test kits (e.g., ferrous iron, hydrogen sulfide)
- Volatile organic analytes (VOA)
- Total organic halons (TOX)
- Total organic carbon (TOC)
- Semi-volatile organic analytes (SVOA)
- Total metals
- Dissolved metals
- Phenols
- Cyanide
- Sulfate and chloride
- Turbidity
- Nitrate and ammonia
- Radionuclides

10. Affix a sample label to each sample container and complete all required information (sample number, date, time, sampler's initials, analysis, preservatives). Record sample ID, date, and time in the field book. Complete chain-of-custody forms with appropriate sampling information. Place in iced cooler etc.
11. Thoroughly decontaminate all non-dedicated and non-disposable equipment used. Discard used tubing, towels, and gloves in a plastic bag.

**STANDARD OPERATING PROCEDURES
FOR
MONITORING WELL SAMPLING**

Prepared by:

**KERAMIDA ENVIRONMENTAL, INC.
401330 North College Avenue
Indianapolis, Indiana 46202
317/685-6600**

MATERIALS LIST

Sampling notebook
Groundwater monitoring data log forms
Well key
Adjustable wrench or manhole wrench
Plastic sheeting
Photoionization detector (PID) or Flame-ionization detector (FID)
Flashlight or mirror
Electronic water level indicator and oil/water interface probe
Bailer(s)
Pump (for purging), polyethylene tubing, and battery
Buckets
Nylon or polyethylene rope or monofilament
pH, conductivity, and temperature meters
Sample bottles, labels, indelible markers, and clear tape
Ice and coolers
Geopump
0.45-micron filters (for dissolved metals analysis)
Teflon and polyethylene tubing
Pocketknife or scissors
Appropriate personal protective equipment (PPE)
Nitrile gloves
Vinyl gloves
Decontamination supplies (Deionized water, Alconox, brushes, bucket, and paper towels)
Toolbox (Wrenches, screwdrivers, and hammer)

SAMPLE COLLECTION

1. Verify the well locations and parameters to be analyzed as specified in the sampling and analysis plan (SAP).
2. Prepare field log book in accordance with *SOP for Note Taking and Log Book Entries*, and include a description of the site, weather conditions, other relevant observations and field personnel.
3. Complete a groundwater sampling sheet for each monitoring well or sampling point.
4. Inspect water surface in the well, using a flashlight if necessary. Note any observable floating contaminants and record observations in the field logbook.

5. Measure and record the extent of protrusion of the top of the well casing above the ground. If well is a flush mount, measure and record the depth of the top of the well casing below the ground. Measure the casing inside diameter (CID) and record in inches.

WATER-LEVEL MEASUREMENTS

6. Water-level measurements and well sampling should start with the upgradient (or clean wells) and proceed downgradient (in the order from least to most contaminated) for the remaining monitoring wells.
7. From the top of the casing, measure the depth (in feet) to water (DTW) with an electronic water level indicator and record in the groundwater monitoring data log. Static water level measurements must be recorded from the surveyor's mark at the top of the casing, if present. If no mark is present, mark a location with a metal file or indelible marker on the casing for future reference. Measure and record in feet the total depth (TD) to the bottom of the well (TD). All well depth measurements should be taken to the nearest hundredth (0.01) of a foot.
8. Check for the presence and thickness of light non-aqueous phase liquids (LNAPLs) and dense non-aqueous phase liquids (DNAPLs) using a free product/water interface probe in accordance with the RCRA Groundwater Monitoring Technical Enforcement Guidance Document (September 1986).
9. Calculate the volume of water in gallons in one well casing:

For a 2-inch well:

$$\text{vol} = [(TD - DTW) * 0.16]$$

For a 4-inch well:

$$\text{vol} = [(TD - DTW) * 0.65]$$

For a 6-inch well:

$$\text{vol} = [(TD - DTW) * 1.47]$$

Or calculate the volume using the formula:

$$\text{vol} = 0.04 d^2 h$$

where:

h = TD – DTW in feet

d = diameter of well in inches

WELL PURGING

10. Remove at least three well volumes to purge the well before sampling. To determine the number of gallons required to purge the well, multiply the number of gallons in one well volume (using the calculations provided above) by three. Record the minimum purge volume in the groundwater monitoring data log.
11. Assess for the presence of LNAPL by carefully lowering the bailer into the well, taking care to prevent the bailer from sinking below the water surface. Remove the bailer and inspect it for LNAPL. If required by the sampling plan, secure samples of the LNAPL for analysis and put the samples on ice.
12. Continue bailing at a uniform rate and empty the bailer into a calibrated container for measurement. After removing the minimum purge volume (at least three well volumes), dispose of the contents in an appropriate container for later disposal in compliance with federal and state laws.
13. A pump may be used in place of a bailer to purge wells when the situation warrants (see Table 1 for a summary of Well Evacuation Equipment and Its Uses).

Table 1
Well Evacuation Equipment and Its Uses

Method	Best Use
Peristaltic Pump (e.g., Geopump®)	Water table is within suction lift. Used on wells that require less than approximately 4 gallons of water for adequate evacuation. Good for slow recovery wells. Not recommended for volatile organic compound analysis.
Centrifugal Pump	Water table is within suction lift on wells that have moderate to high recovery rates. <i>Cannot be used for sampling.</i>
Bailer (Teflon, PVC, polyethylene, or stainless steel)	With slow recovery wells and with wells where access is difficult.
4-inch Electric Submersible Pump	With wells where pump is permanently installed or with deep, large diameter wells where use of low yield pumps is not practical.
Bladder Type (e.g., Geotech®, Well Wizard®)	May be used to sample for volatile organic compound analysis. Water table is below suction lift. Used when water level recovery rates are moderate to high.

14. If a well is bailed dry before removing three well volumes, allow the well to recharge and then proceed with sampling. If full recovery exceeds 2 hours, sample as soon as sufficient volume is available. Wells should not be bailed dry if doing so will cause recharge water to enter the well in a cascading fashion, but instead will be bailed at a rate which will minimize the agitation of recharged water.

SAMPLE COLLECTION

15. All samples should be collected using a bailer unless an alternate method (i.e., using bladder type pump for VOCs) is specified in the SAP or QAPP.
16. While collecting samples, lower the bailer slowly to avoid agitating the water. Sample first for VOCs, taking care to remove all air bubbles from the VOC vial and minimize agitation. Collect the remaining organic samples, and then collect the inorganic samples.
19. This is the recommended sequence for sample collection:
 - In-situ measurements (e.g., temperature, pH, specific conductance)
 - Field test kits (e.g., ferrous iron, hydrogen sulfide)
 - Volatile organic analytes (VOA)
 - Total organic halides (TOX)
 - Total organic carbon (TOC)
 - Semi-volatile organic analytes (SVOA)
 - Total metals
 - Dissolved metals
 - Phenols
 - Cyanide
 - Sulfate and chloride
 - Turbidity
 - Nitrate and ammonia
 - Radionuclides
20. Affix a sample label to each sample container and complete all required information (sample number, date, time, sampler's initials, type of analysis, preservatives used). Record sample number, well number, date, time, and the sampler's initials on the sample tracking form and in the field book. Complete chain-of-custody forms with appropriate sampling information.
21. Inspect the well for soundness of protective casing and surface ground seal. Record water color, suspended particulates, discoloration of casing, casing diameter and material, any unusual occurrences during sampling, and any pertinent weather details on the groundwater monitoring data log.
22. Thoroughly decontaminate all non-dedicated and non-disposable equipment using the SOP for Decontamination of Sampling Equipment. Discard used bailer cord, disposable bailer, plastic sheeting, towels, gloves in a plastic bag.

FILTERING OF METAL SAMPLES

- A. Assemble Geopump® peristaltic pump per the operating manual instructions that accompany the pump.
- B. Silicon tubing is to be used only through the head of the peristaltic pump.
- C. At the pump intake, attach polyethylene tubing to the silicon tubing. The polyethylene tubing should be long enough to extend to the bottom of the bailer . The sample aliquot can be transferred to a new, unpreserved plastic container. At the pump discharge end of the pump, attach a 0.45-micron filter to the silicon tubing.
- D. Turn on the pump and draw the water from the bailer or unpreserved container, through the pump and filter, and into the nitric acid-preserved sample container.
- E. Disassemble the pump head and discard the polyethylene and silicon tubing in a plastic bag.

ATTACHMENT 2

SOIL BORING LOGS AND PIEZOMETER CONSTRUCTION DIAGRAMS

KERAMIDA Environmental, Inc.

LOG OF BORING KB-5




(Page 1 of 1)

Harbor Terrace, LLC
2131-2151 N. Meridian
Indianapolis, IN

Project ID : 11753
Date Drilled : 9-29-06
Drilling Method : Push-Probe
Geologist/Tech : Frank West
Drilling Co : IEGS

General Location : 2132 N. Pennsylvania

KERAMIDA Project No. 11753

Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		GRAVEL with brick fragments	1	0.6	0	
4		SANDY LOAM, 10YR 3/4 (dark yellowish brown), damp, firm, friable, gravelly	2	3.3	0	
8		SAND, 10YR 5/3 (brown), damp, loose, very gravelly	3	2	0	
12		Core barrel refusal at 12'. Advance well screen to 22 feet.			NA	
16						
20						Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
24						
28						
32						

KERAMIDA Environmental, Inc.








LOG OF BORING KB-6

(Page 1 of 1)

Harbor Terrace, LLC
2131-2151 N. Meridian
Indianapolis, INProject ID : 11753
Date Drilled : 9-29-06
Drilling Method : Push-Probe
Geologist/Tech : Frank West
Drilling Co : IEGS

General Location : 2132 N. Pennsylvania

KERAMIDA Project No. 11753

Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		Gravelly FILL, asphalt	1	2.5	0	Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
		SANDY LOAM, 10YR 3/4 (dark yellowish brown), damp, friable, very gravelly to 2', no gravel after 2'			NA	
4		SAME	2	4	0	
		Slightly gravelly			0	
8		SAND, 10YR 5/3 (brown), dry, loose, very gravelly	3	2	0	
					NA	
12		Fine to medium, no gravel	4	3	0	
					0	
16		Slightly gravelly to gravelly, wet (non-satiated)	5	4	0	
					0	
20		Advance well screen to 22 feet.				
24						
28						
32						

KERAMIDA Environmental, Inc.

LOG OF BORING KB-7

(Page 1 of 1)

Harbor Terrace, LLC
2131-2151 N. Meridian
Indianapolis, IN

Project ID : 11753
Date Drilled : 9-29-06
Drilling Method : Push-Probe
Geologist/Tech : Frank West
Drilling Co : IEGS

General Location : 2127 N. Meridian

KERAMIDA Project No. 11753

Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		LOAMY SAND, 10YR 3/4 (dark yellowish brown), dry, firm, friable, slightly gravelly	1	2.9	0	
4		Moist, slightly gravelly	2	4	0	
8		GRAVEL, 10YR 7/6 (yellow)	3	1.8	0	
		SAND (fine to medium), 2.5Y 5/3 (light olive brown), dry, loose			NA	
12		Medium to coarse, gravelly	4	2.8	0	
16		Same.	5	3.7	0	
20		Advance well screen to 22 feet.			0	Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
24						
28						
32						

KERAMIDA Environmental, Inc.

LOG OF BORING KB-8









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








Harbor Terrace, LLC
2131-2151 N. Meridian
Indianapolis, IN

Project ID : 11753
Date Drilled : 9-29-06
Drilling Method : Push-Probe
Geologist/Tech : Frank West
Drilling Co : IEGS

General Location : 2127 N. Meridian

KERAMIDA Project No. 11753

Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		Top soil				
		LOAMY SAND, 10YR 3/4 (dark yellowish brown), damp, friable, slightly gravelly	1	2.6	0	
					0	
4		Same.			0	
		FILL, black and brown, granular	2	3.8	0	
		SANDY LOAM, 10YR 5/3 (brown), moist, firm, friable, slightly gravelly			0	
8		Same.			0	
		SAND (fine to coarse), 10YR 5/3 (brown), dry, loose, gravelly	3	2	0	
					NA	
12		Same.	4	2.5	0	
					0	
16		Core barrel refusal at 16 feet. Advance well screen to 22 feet.				Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
20						
24						
28						
32						

KERAMIDA Environmental, Inc.		LOG OF BORING KB-9				
Harbor Terrace, LLC 2131-2151 N. Meridian Indianapolis, IN		Project ID : 11753		General Location : Northwest Corner of		
KERAMIDA Project No. 11753		Date Drilled : 9-29-06		: Building		
		Drilling Method : Push-Probe				
		Geologist/Tech : Frank West				
		Drilling Co : IEGS				
Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		Asphalt and base gravel	1	2.1	0	
		SANDY LOAM, 10YR 3/4 (dark yellowish brown), moist, firm, friable			NA	
4		Same, slightly gravelly.	2	2.5	0	
		SAND (medium to coarse), 10YR 5/3 (brown), dry, loose, very gravelly			0	
8		Same.	3	2.6	0	
		<--Sand size fine to medium <--Becomes very gravelly			0	
12		Same.	4	3	0	
					0	
16		Same.	5	4	0	
		<--Wet.			3.3	
20		Advance well screen to 22 feet.				Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
24						
28						
32						

KERAMIDA Environmental, Inc.

LOG OF BORING KB-10





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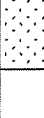
Harbor Terrace, LLC
2131-2151 N. Meridian
Indianapolis, IN






Project ID : 11753
Date Drilled : 9-29-06
Drilling Method : Push-Probe
Geologist/Tech : Frank West
Drilling Co : IEGS

General Location : North of building

KERAMIDA Project No. 11753

Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		Asphalt and base gravel				
		Loamy sand FILL, 10YR 2/1 (black), moist, friable, gravelly	1	1.5	0	
4		Same, 10YR 3/4 (dark yellowish brown)			NA	
		SAND (fine to coarse), 10YR 5/3 (brown), dry, loose, gravelly	2	2.3	0	
8		Core barrel refusal at 8 feet. Advance well screen to 22 feet.			0	
12						
16						
20						Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
24						
28						
32						

KERAMIDA Environmental, Inc.		LOG OF BORING KB-11				
Harbor Terrace, LLC 2131-2151 N. Meridian Indianapolis, IN		(Page 1 of 1)				
KERAMIDA Project No. 11753		Project ID : 11753	General Location : East Center of north grass			
		Date Drilled : 10-2-06	: lot.			
		Drilling Method : Push-Probe				
		Geologist/Tech : Bruce Winningham				
		Drilling Co : Keramida				
Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		Topsoil FILL, sand, gravel, asphalt Soil, very dark grey to brown, moist, loose	1	2.9	0	Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
4		LOAM, slightly gravelly	2	3.2	0	
8		CLAY LOAM, 10YR 4/2 (dark grayish brown) grading to 10YR 3/1 (very dark gray), very firm, moist, dark reddish mottling	3	2.8	0	
12		Same.	4	2.3	0	
16		SAND, 10YR 5/3 (brown) to 10YR 5/6 (yellowish brown), dry, loose, slightly gravelly	5	2	0	
20		Same, gravelly			0	
		Same, sand size medium to coarse, wet at 18'.			0	
		Advance well screen to 22 feet.			0	
24						
28						
32						

KERAMIDA Environmental, Inc.		LOG OF BORING KB-12				
		(Page 1 of 1)				
Harbor Terrace, LLC 2131-2151 N. Meridian Indianapolis, IN		Project ID : 11753 Date Drilled : 10-2-06 Drilling Method : Push-Probe Geologist/Tech : Frank West Drilling Co : Keramida		General Location : South center of : north grass lot		
KERAMIDA Project No. 11753						
Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		SILT LOAM, 10YR 3/1 (very dark gray), friable, dry, abundant roots	1	2	0	Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.
		FILL, sand with pebbles (medium to coarse), 10YR 5/3 (brown), loose, dry			0	
4		SANDY LOAM, 2.5Y 3/3 (dark olive brown), hard, dry, friable. Brick encountered at 5'.	2	2.6	0	
		SAND (medium to coarse), 10YR5/3 (brown), dry, loose, gravelly			0	
8		Same. 4-inch interval of slightly cohesive fine SAND, 7.5YR5/8 (strong brown)	3	3.1	0	
					0	
12		Core barrel refusal at 13'. Advance well screen to 22 feet.	4	0	NA	
					NA	
16						
20						
24						
28						
32						

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KERAMIDA Environmental, Inc.

LOG OF BORING KB-13






(Page 1 of 1)

Harbor Terrace, LLC
2131-2151 N. Meridian
Indianapolis, IN

Project ID : 11753
Date Drilled : 10-2-06
Drilling Method : Push-Probe
Geologist/Tech : Frank West
Drilling Co : Keramida

General Location : East end of North
: Parking Lot

KERAMIDA Project No. 11753

Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		ASPHALT, gravel, sand, old asphalt	1	2.5	0	
		FILL, silt loam with pebbles, 2.5Y 4/3 (olive brown), friable, plant roots, dry, blocky structures				
					0	
4		Same.	2	2.4	0	
		SAND (very fine to coarse), 10YR5/3 (brown) dry, loose, gravelly			0	
					0	
8		Same (medium to coarse)	3	2.6	0	
					0	
12		Core barrel refusal at 12'. Advance well screen to 22 feet.				
16						
20						
24						
28						
32						
						Groundwater sample collected for VOC analysis. Screen set from 18-22 feet.

KERAMIDA Environmental, Inc.		LOG OF BORING KB-14				
Harbor Terrace, LLC 2131-2151 N. Meridian Indianapolis, IN		Project ID : 11753		General Location : Inside Building at		
KERAMIDA Project No. 11753		Date Drilled : 10-2-06		: West Apparent Former		
		Drilling Method : Push-Probe		: Printing Operation		
		Geologist/Tech : Frank West				
		Drilling Co : IEGS				
Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		Concrete				Soil sample collected from sand under concrete and gravel and analyzed for VOCs.
		Gravel			0	
		Sand (fine to coarse), 10YR 4/3 (brown), dry, loose, gravelly	1	3	0	
		Loamy sand, 10YR 4/3 (brown), damp, friable, slightly gravelly. 2" layer of asphalt at 2' 9".			0	
4		Sand (fine to coarse), 10YR5/3 (brown), dry, loose, slightly gravelly to gravelly.	2	4	0	
8					0	
			3	4	0	
12		<--Very gravelly			0	
			4	4	2	
16					1.4	Soil sample collected from 16-18' and analyzed for VOCs.
			5	4	11.2	Groundwater sample collected from 19-23' and analyzed for VOCs
20						
		Advance well screen to 23 feet.				
24						
28						
32						

KERAMIDA Environmental, Inc.

LOG OF BORING KB-15

(Page 1 of 1)

Harbor Terrace, LLC
2131-2151 N. Meridian
Indianapolis, IN

Project ID : 11753
Date Drilled : 10-2-06
Drilling Method : Push-Probe
Geologist/Tech : Frank West
Drilling Co : IEGS

General Location : Inside Building at
: East Apparent Former
: Printing Operation

KERAMIDA Project No. 11753

Depth in feet	GRAPHIC	DESCRIPTION	Samples	Rec Feet	PID ppm	REMARKS
0		Concrete				Soil sample collected from sand under concrete and gravel and analyzed for VOCs.
		Gravel			0	
		Sand (fine to coarse), 10YR 4/3 (brown), dry, loose, gravelly	1	3	0	
		Loamy sand, 10YR 4/3 (brown), moist, friable, slightly gravelly.			0	
4		Same.			0	
			2	4	0	
					0	
8					0	
		Sand (fine to coarse), 10YR5/3 (brown), dry, loose, gravelly.	3	4	0	
		<-- Sand well sorted, no gravel.			0	
12		<--Sand fine to coarse, gravelly.			0	
			4	4	0	
					0	
16					0	Soil sample collected from 16-18' and analyzed for VOCs.
			5	4		
					5.3	Groundwater sample collected from 19-23' and analyzed for VOCs
20		<--Wet.				
		Advance well screen to 23 feet.				
24						
28						
32						

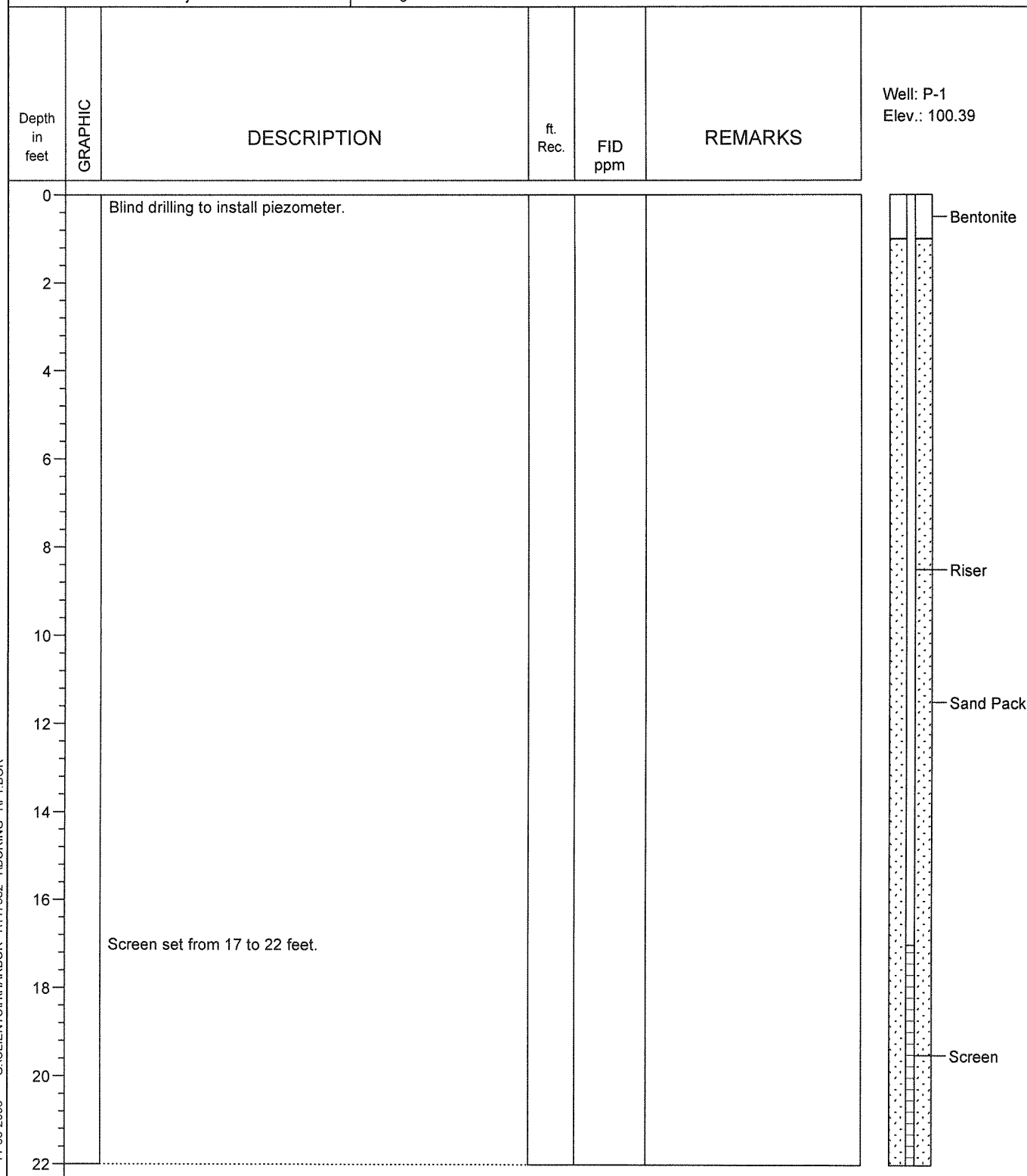
KERAMIDA Environmental, Inc.

LOG OF BORING P-1

(Page 1 of 1)

Harbor Terrace, LLC.
2131-2151 N. Meridian
Indianapolis, INProject I.D. : 11753
Date Drilled : 9/29/06
Drilling Method : Geoprobe
Geologist : Frank West
Drilling Co : IECSGeneral Location : Southeast corner of
property

KERAMIDA Project No 11753



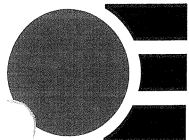
ATTACHMENT 3

LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION

Attachment D

Off-Site Groundwater Investigation Report

2131 – 2151 N. Meridian Street Site



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Indianapolis, Indiana 46202
(317) 685-6600 • Fax (317) 685-6610
1-800-508-8034

keramida@keramida.com • www.keramida.com

**OFF-SITE GROUNDWATER INVESTIGATION REPORT
2131 – 2151 NORTH MERIDIAN STREET
INDIANAPOLIS, INDIANA
KERAMIDA PROJECT NO. 12388**

Submitted to: **NEAR NORTH DEVELOPMENT CORPORATION**

Ms. Amy Kotzbauer, President
1800 North Meridian Street
Indianapolis, Indiana 46202

HARBOR TERRACE PARTNERS, LLC

Mr. Jeffrey Congdon
152 East 22nd Street, Suite A
Indianapolis, Indiana 46202

Submitted by: **KERAMIDA ENVIRONMENTAL, INC.**

401 North College Avenue
Indianapolis, Indiana 46202
(317) 685-6600

Frank D. West, L.P.G.
Senior Project Manager

Reviewed by:

Douglas B. Zabonick, P.E.
Senior Vice President

October 2, 2007

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**OFF-SITE GROUNDWATER INVESTIGATION REPORT
2131 – 2151 NORTH MERIDIAN STREET
INDIANAPOLIS, INDIANA
KERAMIDA PROJECT NO. 12388**

Submitted to:

NEAR NORTH DEVELOPMENT CORPORATION

Ms. Amy Kotzbauer, President
1800 North Meridian Street
Indianapolis, Indiana 46202

and

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Mr. Jeffrey Congdon
152 East 22nd Street, Suite A
Indianapolis, Indiana 46202

Submitted by:

KERAMIDA ENVIRONMENTAL, INC.

401 North College Avenue
Indianapolis, Indiana 46202
(317) 685-6600

October 2, 2007

EXECUTIVE SUMMARY

KERAMIDA Environmental, Inc. (KERAMIDA) was retained by Near North Development Corporation and Harbor Terrace Partners, LLC (Client) to conduct an Off-Site Groundwater Investigation (Investigation) of the odd-numbered parcels from 2131 through 2151 North Meridian Street, Indianapolis, Marion County, Indiana (Site). The purpose of the Investigation was to confirm the presence of a suspected off-Site upgradient source of the tetrachloroethene (PCE) contamination detected in on-Site groundwater. The Site is in the Indiana Department of Environmental Management (IDEM) Brownfields Program. The goal of the Investigation was to provide confirmatory documentation of the presence of an off-Site source in order to obtain a Comfort Letter from the Brownfields Program to facilitate redevelopment of the Site.

The Investigation scope of work was performed in August 2007 and included the advancement of six soil borings; collection and analysis of groundwater samples for volatile organic compounds (VOC); installation of three temporary piezometers; and collection of depth to groundwater measurements to confirm groundwater flow direction.

The results of the Investigation revealed the following:

- PCE was detected at the top of the water table in upgradient groundwater at a concentration significantly higher than concentrations previously detected in on-Site groundwater.
- There were no field indications of PCE occurrence in the unsaturated soils, indicating the precise location of the source has not been determined.
- Shallow groundwater flow and gradient was confirmed for the third time to be from northeast to southwest across the Site, consistent with previous investigations.

The results support the presence of an upgradient off-Site source (most likely the active dry cleaner at 2179 North Pennsylvania Avenue) of the PCE occurrence in on-Site groundwater. KERAMIDA recommends this report be submitted to IDEM along with a request for a Comfort Letter in accordance with IDEM Nonrule Policy Document W-0047 "Property Containing Contaminated Aquifers". KERAMIDA also recommends Site use and development be planned in light of potential exposure to groundwater contaminants by future Site users. The Site is supplied with potable water by the municipal water supply system, and no groundwater wells are present on-Site. This minimizes the potential for future Site users to directly contact the

contaminated groundwater. However, exposure to PCE via vapor intrusion is a potential concern. All former Site structures have been demolished. Installation of vapor abatement systems should be considered in any building plans and specifications for new construction.

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ATTACHMENTS

- 1 Boring Logs and Piezometer Construction Diagrams
- 2 Laboratory Report and Chain-of-Custody Documentation

**OFF-SITE GROUNDWATER INVESTIGATION REPORT
2131 - 2151 NORTH MERIDIAN STREET
INDIANAPOLIS, INDIANA
KERAMIDA PROJECT NO. 12388**

1.0 INTRODUCTION

KERAMIDA Environmental, Inc. (KERAMIDA) was retained by Near North Development Corporation and Harbor Terrace Partners, LLC (Client) to conduct an Off-Site Groundwater Investigation (Investigation) of the odd-numbered parcels from 2131 through 2151 North Meridian Street, Indianapolis, Marion County, Indiana (Site) (see Figure 1). The purpose of the Investigation was to confirm the presence of a suspected off-Site upgradient source of the tetrachloroethene (PCE) contamination detected in on-Site groundwater. The Site is in the Indiana Department of Environmental Management (IDEM) Brownfields Program. The goal of the Investigation was to provide confirmatory documentation of the presence of an off-Site source in order to obtain a Comfort Letter from the Brownfields Program to facilitate redevelopment of the Site.

2.0 BACKGROUND

The Site consists of five parcels of land encompassing approximately 0.9 acres (see Figure 2). The parcel numbers are 2131, 2133, 2137, 2139, and 2151 North Meridian Street. All previous Site structures present on the 2133 and 2137 parcels have been demolished and paved parking areas on the remaining parcels have been removed in preparation for redevelopment. Surrounding land use is mixed commercial/industrial along Meridian Street, and residences are located east-adjacent to the Site along Pennsylvania Street.

KERAMIDA completed a Phase I Environmental Site Assessment (Phase I) of the property in 2004. The Phase I revealed both on- and off-Site potential sources of subsurface contamination including historical printing operations on-Site, an apparent petroleum underground storage tank (UST) located on the south adjacent property, and nearby active and historic dry cleaners, gasoline service stations, and auto body shops.

KERAMIDA conducted an initial Phase II Environmental Assessment (Phase II) in May 2005 which included on-Site soil and groundwater sampling. The samples were analyzed for

compounds of potential concern (COPCs) related to the potential sources of contamination identified during the Phase I. The analytical data were compared to the Indiana Department of Environmental Management Risk Integrated System of Closure (RISC) Residential Default Closure Levels and Commercial/Industrial Default Closure Levels. The results revealed the presence of PCE in groundwater at concentrations greater than the Residential and Commercial/Industrial Default Closure Levels. Potential sources of the PCE were the existing Penn 60 Minute Cleaners located directly upgradient to the northeast of the Site at 2179 North Pennsylvania Avenue (see Figure 2), and historical on-Site printing operations.

KERAMIDA conducted an additional subsurface investigation in September and October of 2007 to further assess the location of the PCE source and define the extent of the groundwater plume. No PCE soil source was discovered on-Site at the historical printing area. The highest PCE groundwater concentrations were detected at the upgradient northeast corner of the Site. Groundwater was confirmed to flow from the northeast to the southwest, directly downgradient from the dry cleaner.

A meeting with IDEM Brownfields Program staff was held to discuss the findings of the investigations and a request for a Comfort Letter to facilitate redevelopment of the Site. The IDEM requested an off-Site groundwater investigation be performed to provide confirmatory documentation of the presence of an off-Site source in or to obtain a Comfort Letter. This report documents the methods and results of the off-Site groundwater investigation.

3.0 INVESTIGATION SCOPE AND METHODS

The scope of work completed during the Investigation included advancement of six soil borings; collection and analysis of groundwater samples for volatile organic compounds (VOC); installation of three temporary piezometers; and collection of depth to groundwater measurements to confirm groundwater flow direction. The methods used to conduct these tasks are discussed in the sections below.

Prior to mobilizing to the Site, KERAMIDA contacted the Indiana Underground Plant Protection Services to have the public underground utilities marked at the Site and surrounding properties. KERAMIDA also prepared a Site-specific health and safety plan (HASP) for the Investigation activities. The field manager reviewed the HASP with all field personnel each day prior to initiation of field activities.

3.1 SOIL BORING ADVANCEMENT AND GROUNDWATER SAMPLING

On August 15, 2007, soil borings and piezometers were installed using a Geoprobe® direct-push drill rig at the locations shown on Figure 2. The borings (KB-16 through KB-21) were extended to the top of the groundwater table (approximately 14 to 16 feet below ground surface [bgs]). Continuous soil cores were extracted from each boring. Observations of soil texture and physical evidence of contamination were recorded on boring logs, which are presented in Attachment 2. Each soil core was screened for organic vapors at two-foot intervals using a flame-ionization detector (FID). Soil sample collection and analysis was not planned unless field conditions indicated the presence of contamination in the unsaturated soil. No evidence of contamination was observed in the unsaturated soil column and, therefore, no laboratory soil samples were collected. Groundwater samples were collected from the borings on August 15, 2007. At each boring, 10-foot long dedicated temporary screen points consisting of one-inch diameter PVC screen and riser were installed to intersect the top of the groundwater table. Each temporary point was purged using dedicated tubing and a check-valve until groundwater turbidity visually stabilized. Groundwater samples were then collected directly into laboratory-supplied containers using the dedicated tubing/check-valve system, packed on ice, and transported to ENVision Laboratory for analysis for VOCs by USEPA Method 8260B.

3.2 PIEZOMETER INSTALLATION AND GAUGING

Piezometers were installed in soil borings KB-16, KB-18, and KB-21 by placing one-inch diameter PVC screens and riser across the top of the water table. Native sands were allowed to collapse around the screen and riser and additional clean silica sand was placed to within approximately one-foot of ground surface. Granular bentonite was placed atop the sand to prevent surface water infiltration into the piezometer. The top of casing (TOC) of each piezometer was surveyed to 0.01-foot vertical control relative to one another using an arbitrary vertical datum. The water level in the piezometers was subsequently measured to determine groundwater flow direction and gradient.

4.0 INVESTIGATION RESULTS

The following sections present the hydrogeological and analytical findings of the Investigation. The soil boring logs are presented in Attachment 2, and the laboratory analytical report is presented in Attachment 3.

4.1 SITE GEOLOGY AND HYDROGEOLOGY

Soils observed in the borings consisted of approximately 5 to 8 feet of loamy textured soils, underlain by gravelly sand that extended to 20 feet bgs, the maximum depth of exploration. No physical evidence of contamination was observed in the unsaturated soils and there were no measurable organic vapor concentrations above background in the unsaturated soils. The unconfined water table was encountered between approximately 14 to 16 feet bgs. Though there were no physical indications of contamination in saturated soils, measurable organic vapor concentrations above background concentrations were observed.

Depth to groundwater in the three piezometers (KB-16, KB-18, and KB-21) ranged from 13.35 to 14.91 feet below the TOC. The resulting groundwater elevations, using the arbitrary vertical datum, ranged from 86.38 to 86.02 feet. Groundwater was determined to flow to the southwest at a gradient of approximately 0.001. Groundwater elevation data are presented in Table 1, and the groundwater potentiometric surface is depicted on Figure 3.

4.2 GROUNDWATER ANALYTICAL RESULTS

The groundwater analytical results are summarized in Table 2. The groundwater results are depicted on Figure 4 along with all previous groundwater data collected at the Site to provide a complete picture of groundwater conditions. PCE was detected at concentrations greater than the RISC Residential Default Closure Level in five of the six groundwater samples. Trichloroethene (TCE), a PCE degradation product, was detected in one of the six groundwater samples at a concentration above its residential default closure level. The highest PCE concentration detected, 3,940 ug/l, is significantly higher than PCE concentrations previously detected on-Site.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The results of the off-Site groundwater investigation revealed the following:

- PCE was detected at the top of the water table in upgradient groundwater at a concentration significantly higher than concentrations previously detected in on-Site groundwater.
- There were no field indications of PCE occurrence in the unsaturated soils, indicating the precise location of the source has not been determined.
- Shallow groundwater flow and gradient was confirmed for the third time to be from northeast to southwest across the Site consistent with previous investigations and directly downgradient from the dry cleaner.

The results support the presence of an upgradient off-Site source (most likely the active dry cleaner at 2179 North Pennsylvania Avenue) of the PCE occurrence in on-Site groundwater. KERAMIDA recommends this report be submitted to IDEM along with a request for a Comfort Letter in accordance with IDEM Nonrule Policy Document W-0047 "Property Containing Contaminated Aquifers". KERAMIDA also recommends Site use and development be planned in light of potential exposure to groundwater contaminants by future Site users. The Site is supplied with potable water by the municipal water supply system, and no groundwater wells are present on-Site. This minimizes the potential for future Site users to directly contact the contaminated groundwater. However, exposure to PCE via vapor intrusion is a potential concern. All former Site structures have been demolished. Installation of vapor abatement systems should be considered in any building plans and specifications for new construction.

6.0 REFERENCES

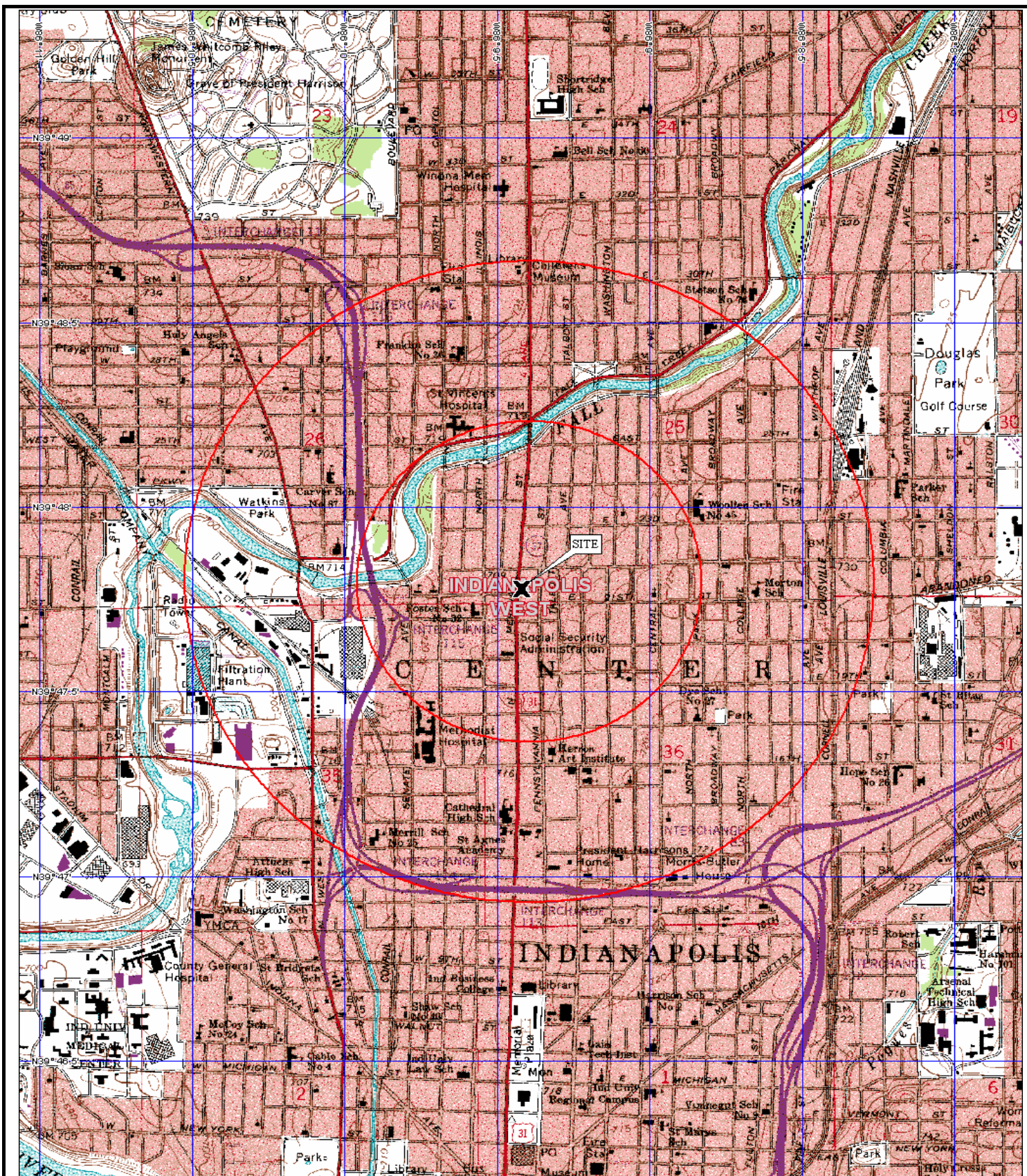
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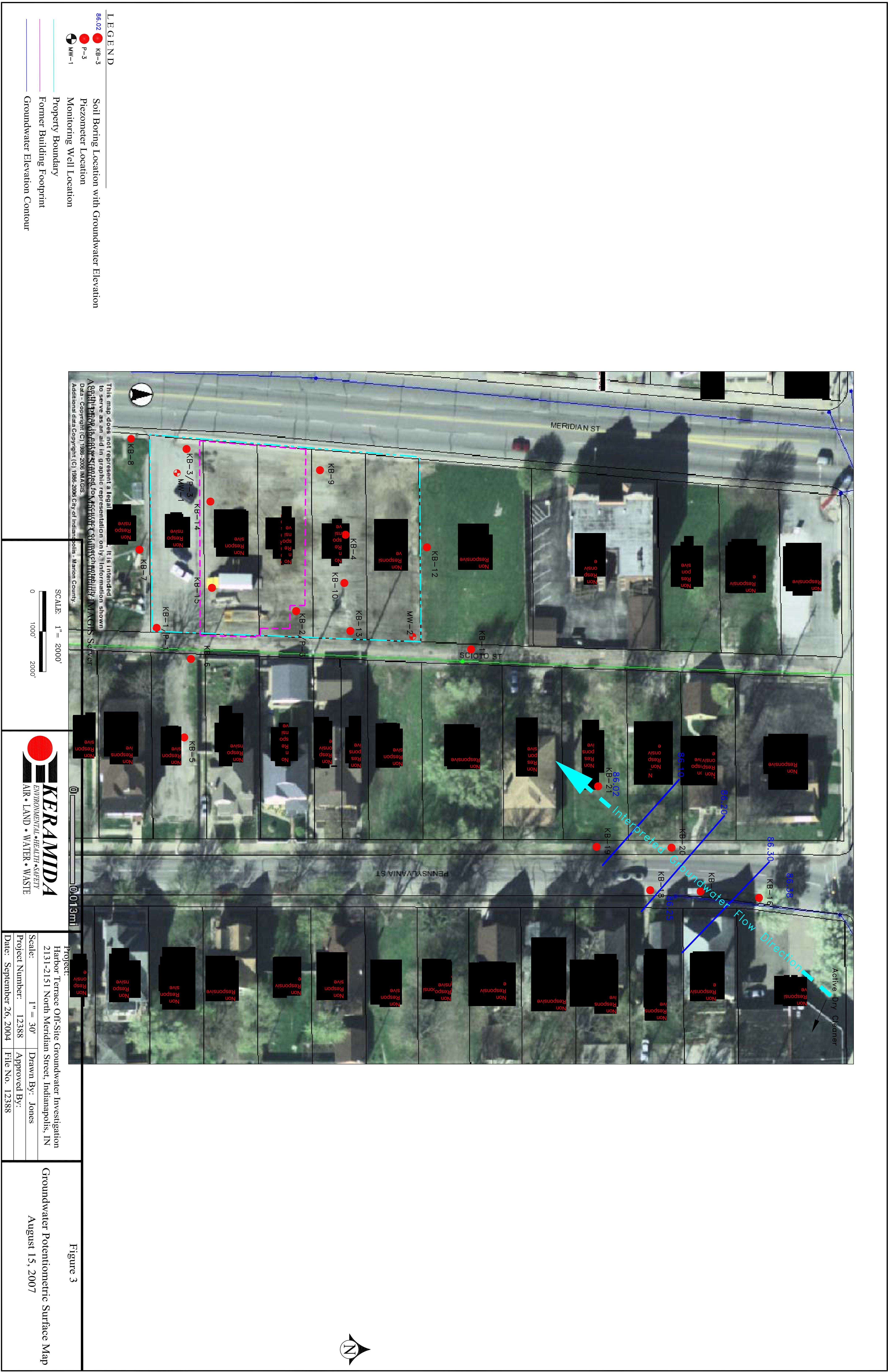


KERAMIDA Environmental, Inc.
330 North College Avenue
Indianapolis, Indiana 46202
(317) 685-6600
(317) 685-6610 FAX



Figure 1
Vicinity Map
Harbor Terrace, LLC
2131 - 2151 North Meridian
Indianapolis, Indiana

Prepared by : CD
Approved by : FW
Date : 9/27/07
Scale : 1"=2000'
KEI Number : 12388



TABLES

Table 1
Groundwater Elevation Data
Off-Site Groundwater Elevation
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 12388

Well No.	TOC Elevation (feet amsl)	Date Gauged	Depth to Water from TOC (feet)	Groundwater Elevation (feet amsl)
KB-16	99.73	8/15/2007	13.35	86.38
KB-18	100.32	8/15/2007	14.07	86.25
KB-21	100.93	8/15/2007	14.91	86.02

Notes:

amsl - above mean sea level

bgs - below ground surface

TOC - top of well casing

Table 2
Groundwater VOC Analytical Results (ug/L)
Off-Site Groundwater Investigation
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 12388

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Acetone	Acrolein	Acrylonitrile	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane (Methyl Bromide)	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene
KB-5W	9/29/2006	18-22	A748105	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-6W	9/29/2006	18-22	A748106	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-7W	9/29/2006	18-22	A748107	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-8W	9/29/2006	18-22	A748108	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-9W	9/29/2006	18-22	A748109	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W	9/29/2006	18-22	A748110	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W Dup	9/29/2006	18-22	A748111	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W	10/9/2006	19-23	A748718	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-15W	10/9/2006	19-23	A748719	<10	<50	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-16W	8/15/2007	14.5-19.5	7-11118	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
KB-17W	8/15/2007	14-20	7-11115	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
KB-17W dup	8/15/2007	14-20	7-11121	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
KB-18W	8/15/2007	13.5-20	7-11119	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
KB-19W	8/15/2007	16-20	7-11116	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
KB-20W	8/15/2007	16-20	7-11117	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
KB-21W	8/15/2007	16-20	7-11120	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
trip blank	8/15/2007	NA	7-11122	<100	<100	<100	<5	<5	<5	<5	<5	<5	<5	<5	<5
RISC Default Closure Level - Residential ⁽¹⁾				690	0.055	NA	5	NA	NA	80	80	11	NA	NA	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾				92,000	51	NA	52	NA	NA	80	360	140	NA	NA	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 2
Groundwater VOC Analytical Results (ug/L)
Off-Site Groundwater Investigation
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 12388

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Carbon disulfide	Carbon tetrachloride	Chlorobenzene	Chlorodibromomethane	Chloroethane	Chloroform	Chloromethane	2-Chlorotoluene	4-Chlorotoluene	2-Chloroethyl vinyl ether	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane (EDB)
KB-5W	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-6W	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-7W	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-8W	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-9W	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	3.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W Dup	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	6.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	3.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-15W	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-16W	8/15/2007	14.5-19.5	7-11118	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
KB-17W	8/15/2007	14-20	7-11115	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
KB-17W dup	8/15/2007	14-20	7-11121	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
KB-18W	8/15/2007	13.5-20	7-11119	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
KB-19W	8/15/2007	16-20	7-11116	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
KB-20W	8/15/2007	16-20	7-11117	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
KB-21W	8/15/2007	16-20	7-11120	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
trip blank	8/15/2007	NA	7-11122	<5	<5	<5	<5	<5	<5	<5	<5	<5	<50	<5	<5
RISC Default Closure Level - Residential ⁽¹⁾															
				1,300	5	100	NA	62	80	NA	NA	NA	NA	NA	0.050
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾															
				10,000	22	2,000	NA	990	1,000	NA	NA	NA	NA	NA	1.4

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

Table 2
Groundwater VOC Analytical Results (ug/L)
Off-Site Groundwater Investigation
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 12388

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Dibromomethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	Dichlorodifluoromethane	trans-1,4-Dichloro-2-butene	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane
KB-5W	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-6W	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-7W	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-8W	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-9W	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W Dup	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	1.8	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-15W	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-16W	8/15/2007	14.5-19.5	7-111118	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
KB-17W	8/15/2007	14-20	7-111115	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
KB-17W dup	8/15/2007	14-20	7-111121	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
KB-18W	8/15/2007	13.5-20	7-111119	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
KB-19W	8/15/2007	16-20	7-111116	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
KB-20W	8/15/2007	16-20	7-111117	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
KB-21W	8/15/2007	16-20	7-111120	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
trip blank	8/15/2007	NA	7-111122	<5	<5	<5	<5	<5	<100	<5	<5	<5	<5	<5	<5
RISC Default Closure Level - Residential ⁽¹⁾															
			NA	600	80.0	75	NA	NA	NA	990	5	7	70	100	5
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾															
			NA	9,200	310	120	NA	NA	NA	10,000	31	5,100	1,000	2,000	42

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

VOCs = Volatile Organic Compounds

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Table 2
Groundwater VOC Analytical Results (ug/L)
Off-Site Groundwater Investigation
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 12388

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	1,3-Dichloropropane	2,2-Dichloropropane	1,1-Dichloropropene	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Ethylbenzene	Ethyl methacrylate	2-Hexanone	Hexachlorobutadiene	Iodomethane	Isopropylbenzene	p-Isopropyltoluene
KB-5W	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-6W	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-7W	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-8W	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-9W	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-10W Dup	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-15W	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-16W	8/15/2007	14.5-19.5	7-111118	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
KB-17W	8/15/2007	14-20	7-111115	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
KB-17W dup	8/15/2007	13.5-20	7-111121	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
KB-18W	8/15/2007	16-20	7-111119	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
KB-19W	8/15/2007	16-20	7-111116	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
KB-20W	8/15/2007	16-20	7-111117	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
KB-21W	8/15/2007	16-20	7-111120	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
trip blank	8/15/2007	NA	7-111122	<5	<5	<5	<5	<5	<5	<100	<10	<5	<10	<5	<5
RISC Default Closure Level - Residential ⁽¹⁾															
				NA	NA	NA	NA	5.6	5.6	700	NA	11	0.85	830	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾															
				NA	NA	NA	NA	29	29	10,000	NA	31	2.9	10,000	NA

Notes:

Samples analyzed using EPA SW-846 Method 8260B

NA = Not Available

ug/L = micrograms per liter

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Table 2
Groundwater VOC Analytical Results (ug/L)
Off-Site Groundwater Investigation
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 12388

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	Methylene chloride	Methyl-ethyl-ketone (MEK) (2-Butanone)	Methyl-tert-butyl ether (MTBE)	4-Methyl-2-pentanone (MIBK)	Naphthalene	n-Propylbenzene	Styrene	1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	Toluene	1,2,3-Trichlorobenzene
KB-5W	9/29/2006	18-22	A748105	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0
KB-6W	9/29/2006	18-22	A748106	1	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	<1.0
KB-7W	9/29/2006	18-22	A748107	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0
KB-8W	9/29/2006	18-22	A748108	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	9.6	1.1	<1.0
KB-9W	9/29/2006	18-22	A748109	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	130	<1.0	<1.0
KB-10W	9/29/2006	18-22	A748110	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	200	1.1	<1.0
KB-10W Dup	9/29/2006	18-22	A748111	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	160	1.1	<1.0
KB-11	10/2/2006	18-22	A748112	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	41	<1.0	<1.0
KB-12	10/2/2006	18-22	A748113	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	18	<1.0	<1.0
KB-13	10/2/2006	18-22	A748114	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	290	<1.0	<1.0
MW-1	10/2/2006	Unknown	A748115	3.7	<10	2	<10	<1.0	<1.0	<1.0	<1.0	<1.0	330	<1.0	<1.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	770	<1.0	<1.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	2,400	<1.0	<1.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
KB-14W	10/9/2006	19-23	A748718	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	180	1.2	<1.0
KB-15W	10/9/2006	19-23	A748719	<1.0	<10	<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	21	1.4	<1.0
KB-16W	8/15/2007	14.5-19.5	7-11118	<5	<10	<5	<10	<5	<5	<5	<5	<5	8.31	<5	<5
KB-17W	8/15/2007	14-20	7-11115	<5	<10	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5
KB-17W dup	8/15/2007	14-20	7-11121	<5	<10	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5
KB-18W	8/15/2007	13.5-20	7-11119	<5	<10	<5	<10	<5	<5	<5	<5	<5	101	<5	<5
KB-19W	8/15/2007	16-20	7-11116	<5	<10	<5	<10	<5	<5	<5	<5	<5	121	<5	<5
KB-20W	8/15/2007	16-20	7-11117	<5	<10	<5	<10	<5	<5	<5	<5	<5	134	<5	<5
KB-21W	8/15/2007	16-20	7-11120	<5	<10	<5	<10	<5	<5	<5	<5	<5	3,940	<5	<5
trip blank	8/15/2007	NA	7-11122	<5	<10	<5	<10	<5	<5	<5	<5	<5	<5	<5	<5
RISC Default Closure Level - Residential ⁽¹⁾															
				5.0	8,400	40	2,200	8.3	310	100	6.9	0.9	5	1,000	NA
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾															
				380	61,000	720	8,200	2,000	4100	20,000	110	14	55	8,200	NA

Notes:
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Table 2
Groundwater VOC Analytical Results (ug/L)
Off-Site Groundwater Investigation
2131-2151 North Meridian Street, Indianapolis, Indiana
KERAMIDA Project No. 12388

Sample No.	Date Sampled	Sample Depth (feet)	Lab Sample No.	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,2,3-Trichloropropane	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Vinyl acetate	Vinyl chloride	Xylenes, (Total)
KB-5W	9/29/2006	18-22	A748105	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-6W	9/29/2006	18-22	A748106	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-7W	9/29/2006	18-22	A748107	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-8W	9/29/2006	18-22	A748108	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-9W	9/29/2006	18-22	A748109	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-10W	9/29/2006	18-22	A748110	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-10W Dup	9/29/2006	18-22	A748111	<1.0	<1.0	<1.0	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-11	10/2/2006	18-22	A748112	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-12	10/2/2006	18-22	A748113	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-13	10/2/2006	18-22	A748114	<1.0	<1.0	<1.0	3.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
MW-1	10/2/2006	Unknown	A748115	<1.0	<1.0	<1.0	3.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
MW-2	10/2/2006	Unknown	A748116	<1.0	<1.0	<1.0	27	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
MW-2 DUP	10/2/2006	Unknown	A748118	<1.0	<1.0	<1.0	24	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
PZ-1	10/2/2006	17-22	A748117	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-14W	10/9/2006	19-23	A748718	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-15W	10/9/2006	19-23	A748719	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0
KB-16W	8/15/2007	14.5-19.5	7-11118	<5	<5	<5	<5	<5	<5	<5	<5	<10	<2	<10
KB-17W	8/15/2007	14-20	7-11115	<5	<5	<5	<5	<5	<5	<5	<5	<10	<2	<10
KB-17W dup	8/15/2007	14-20	7-11121	<5	<5	<5	<5	<5	<5	<5	<5	<10	<2	<10
KB-18W	8/15/2007	13.5-20	7-11119	<5	<5	<5	<5	<5	<5	<5	<5	<10	<2	<10
KB-19W	8/15/2007	16-20	7-11116	<5	<5	<5	<5	<5	<5	<5	<5	<10	<2	<10
KB-20W	8/15/2007	16-20	7-11117	<5	<5	<5	<5	<5	<5	<5	<5	<10	<2	<10
KB-21W	8/15/2007	16-20	7-11120	<5	<5	<5	8.98	<5	<5	<5	<5	<10	<2	<10
trip blank	8/15/2007	NA	7-11122	<5	<5	<5	<5	<5	<5	<5	<5	<10	<2	<10
RISC Default Closure Level - Residential ⁽¹⁾														
				70	200	5	5	NA	NA	16	16	550	2.0	10,000
RISC Default Closure Level - Commercial/Industrial ⁽¹⁾														
				1,000	29,000	50	31	NA	NA	5,100	5,100	100,000	4.0	20,000

Notes:
Samples analyzed using EPA SW-846 Method 8260B
NA = Not Available
ug/L = micrograms per liter
VOCs = Volatile Organic Compounds
⁽¹⁾ Indiana Department of Environmental Management RISC Technical Guide, Final, February 15, 2001, with updates through January 2006.

ATTACHMENT 1

SOIL BORING LOGS AND PIEZOMETER CONSTRUCTION DIAGRAMS



KERAMIDA

401 North College Avenue
Indianapolis, Indiana 46202
(317) 685-6600 " Fax (317) 685-6610
1-800-508-8034

ENVIRONMENT <> HEALTH <> SAFETY

LogNo.: KB-16

PROJECT NUMBER: 12388

DATE STARTED: 8/15/07

PROJECT NAME: Off-Site Groundwater Investigation

DATE COMPLETED: 5/15/07

LOCATION: 2162-2179 N. Pennsylvania Ave., Indianapolis, IN

CASING TYPE: 1" PVC

DRILLING CONTRACTOR: Duke's Earth Services

SCREEN TYPE: 1" PVC 10-slot

DRILLING METHOD: Geoprobe

SCREEN PACK:

LOGGED BY: Kathy Eck

GROUND ELEVATION:

COMMENTS: Sunny- 80s

TOP OF CASING: 99.73

DEPTH (feet)	SAMPLES			OVM Reading	LITHOLOGY DESCRIPTION Texture (USDA): moisture, rupture or plasticity/density, Munsell color, concretions, odor	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
	Sample No.	Sample	Ft of Rec			
0					Topsoil, grass and roots	1
0.3					LOAM, gravelly (medium to coarse), dry, brown (10YR4/3)	1
2						
0.1					SANDY CLAY LOAM (fine to coarse), dry, dark yellowish brown (10YR4/4)	3
4			2	0.4		
6				0.2	LOAMY SAND (fine to coarse), gravelly (fine to coarse), dry, light yellowish brown (10YR6/4). At 9' same as above light gray (10YR7/1). Same at above, moist at 14'	5
8				1.2		7
10			2.5	1.1		9
12				2.3		11
14				0.4	SAND to LOAMY SAND (fine to coarse), wet (satiated), grayish brown (10YR5/2)	13
16			3	0.3	SAND (fine to coarse), very gravelly (fine to coarse), wet (satiated), grayish brown (10YR5/2)	15
18				0.4		17
20			4			19
22						21
24						23
26						25
28						27
30						29
						31

1-9.5 - 1" PVC Casing

9.5-19.5 - 1" PVC
10-slot screen, temp.
piezometer



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LogNo.: KB-17

PROJECT NUMBER: 12388

DATE STARTED: 8/15/07

OBJECT NAME: Off-Site Groundwater Investigation

DATE COMPLETED: 8/15/07

LOCATION: 2162-2179 N. Pennsylvania Ave., Indianapolis, IN

CASING TYPE: 1" PVC

DRILLING CONTRACTOR: Duke's Earth Services

SCREEN TYPE: 1" PVC 10-slot

DRILLING METHOD: Geoprobe

SCREEN PACK:

LOGGED BY: Kathy Eck

GROUND ELEVATION:

COMMENTS: Sunny- 80s

TOP OF CASING:

DEPTH (feet)	SAMPLES			OVM Reading	LITHOLOGY DESCRIPTION Texture (USDA): moisture, rupture or plasticity/density, Munsell color, concretions, odor	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
	Sample No.	Sample	Ft of Rec			
0				0.3	TOPSOIL, grass and roots	1
2					LOAM, gravelly (fine to coarse), dry, dark brown (10YR3/3)	1
4						3
6			1.5	0.6	SAND (fine to coarse), slightly gravelly (fine to coarse), dry, grayish brown (10YR5/2)	5
8				8.7	LOAMY SAND (fine to coarse), slightly moist, yellowish brown (10YR5/4)	7
10				4.6		9
12			3.5	3.4	SAND (fine to coarse), dry, grayish brown (10YR5/2)	11
14				14.2	LOAMY SAND (fine to coarse), gravelly (fine to coarse), dry, gray (10YR5/1)	13
16				10.3	SAND (fine to coarse), gravelly (fine to coarse), wet (saturated), brown (10YR4/3). at 17.5' - same as above, gray (10YR5/1)	15
18			4	2.3		17
20				2.4	SAND (fine to coarse), slightly gravelly (fine to medium), wet (saturated), gray (10YR5/1)	19
22						21
24						23
26						25
28						27
30						29
						31



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LogNo.: KB-18

PROJECT NUMBER: 12388

DATE STARTED: 8/15/07

PROJECT NAME: Off-Site Groundwater Investigation

DATE COMPLETED: 8/15/07

LOCATION: 2162-2179 N. Pennsylvania Ave., Indianapolis, IN

CASING TYPE: 1" PVC

DRILLING CONTRACTOR: Duke's Earth Services

SCREEN TYPE: 1" PVC 10-slot

DRILLING METHOD: Geoprobe

SCREEN PACK:

LOGGED BY: Kathy Eck

GROUND ELEVATION:

COMMENTS: Sunny- 80s

TOP OF CASING: 100.32

DEPTH (feet)	SAMPLES			OVM Reading	LITHOLOGY DESCRIPTION Texture (USDA): moisture, rupture or plasticity/density, Munsell color, concretions, odor	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
	Sample No.	Sample	Ft of Rec			
0					TOPSOIL	1
0.3					SAND (fine to coarse), slightly gravelly (fine to medium), dry	1
2					LOAMY SAND (fine to coarse), slightly gravelly (fine to coarse), dry, brown (10YR4/3)	3
4			2.5	0.3	SILTY CLAY, dry, brown (10YR4/3). at 4.5' same as above yellowish brown (10YR5/6). At 5-7.5' same as above, gravelly (fine to coarse)	5
6				1.1		7
8				1.5	LOAMY SAND (fine to coarse), very gravelly (fine to coarse), dry, pale brown (10YR6/3)	9
10			4	1.8		11
12				5.7		13
14			5	5.3	SAND (fine to coarse), wet (satiated), gray (10YR5/1)	15
16				13.6	SAND (fine to coarse), very gravelly (fine to coarse), wet (satiated), grayish brown (10YR5/2)	17
18				24.1		19
20			5			21
22						23
24						25
26						27
28						29
30						31

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LogNo.: KB-19

PROJECT NUMBER: 12388

DATE STARTED: 8/15/07

OBJECT NAME: Off-Site Groundwater Investigation

DATE COMPLETED: 8/15/07

LOCATION: 2162-2179 N. Pennsylvania Ave., Indianapolis, IN

CASING TYPE: 1" PVC

DRILLING CONTRACTOR: Duke's Earth Services

SCREEN TYPE: 1" PVC 10-slot

DRILLING METHOD: Geoprobe

SCREEN PACK:

LOGGED BY: Kathy Eck

GROUND ELEVATION:

COMMENTS: Sunny- 80s

TOP OF CASING:

DEPTH (feet)	SAMPLES			OVM Reading	LITHOLOGY DESCRIPTION Texture (USDA): moisture, rupture or plasticity/density, Munsell color, concretions, odor	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
	Sample No.	Sample	Ft of Rec			
0				0	TOPSOIL, grass and roots	1
2				1.0	LOAM, slightly gravelly (fine to coarse), dry, very dark grayish brown (10YR3/2)	1
4				1.2	SAND (fine to coarse), slightly gravelly (fine to coarse), dry, pale brown (10YR6/3). 2" of crushed brick pieces at 3.7'	3
6			3.5	1.2	LOAMY SAND (fine to coarse), very slightly gravelly (fine to medium), dry, brown (10YR4/3)	5
8				1.5	SILTY CLAY, dry, dark yellowish brown (10YR3/4)	7
10			3.5	2.2		9
12				3.2	LOAMY SAND (fine to coarse), gravelly (fine to coarse), dry, very pale brown (10YR7/4). At 16' same as above, wet (satiated). At 18' same as above, gray (10YR5/1)	11
14				4.7		13
16			3	7.6		15
18				5.9		17
20			3	30.0		19
22						21
24						23
26						25
28						27
30						29
						31

0-10 - 1" PVC Casing

10-20 - 1" PVC 10-slot
screen; temp.
piezometer



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LogNo.: KB-20

PROJECT NUMBER: 12388

DATE STARTED: 8/15/07

PROJECT NAME: Off-Site Groundwater Investigation

DATE COMPLETED: 8/15/07

LOCATION: 2162-2179 N. Pennsylvania Ave., Indianapolis, IN

CASING TYPE: 1" PVC

DRILLING CONTRACTOR: Duke's Earth Services

SCREEN TYPE: 1" PVC 10-slot screen

DRILLING METHOD: Geoprobe

SCREEN PACK:

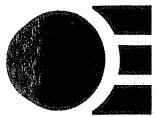
LOGGED BY: Kathy Eck

GROUND ELEVATION:

COMMENTS: Sunny-80s

TOP OF CASING:

DEPTH (feet)	SAMPLES			OVM Reading	LITHOLOGY DESCRIPTION Texture (USDA): moisture, rupture or plasticity/density, Munsell color, concretions, odor	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
	Sample No.	Sample	Ft of Rec			
0					TOPSOIL, grass and roots	1
1.1					LOAM, gravelly (fine to coarse), dry, very dark gray brown (10YR3/2)	1
2						
3					SANDY LOAM (fine to coarse), slightly gravelly (fine to coarse), dry, dark yellowish brown (10YR4/4)	3
4						
5					SILT LOAM, very slightly gravelly (fine to medium), dry, dark yellowish brown (10YR4/4)	5
6						
7						
8					LOAMY SAND (fine to coarse), gravelly (fine to coarse), dry, light brownish gray (10YR6/2). Some iron staining 8.5-9'	9
9						
10						
11						
12						
13						
14						
15					SAND (fine to coarse), slightly gravelly (fine to medium), slightly moist, grayish brown (10YR5/2). Wet (saturated) at 16'	15
16						
17					SAND (fine to coarse), very gravelly (fine to coarse), wet (satiated), grayish brown (10YR5/2)	17
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						



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LogNo.: KB-21

PROJECT NUMBER: 12388

DATE STARTED: 8/15/07

PROJECT NAME: Off-Site Groundwater Investigation

DATE COMPLETED: 8/15/07

LOCATION: 2162-2179 N. Pennsylvania Ave., Indianapolis, IN

CASING TYPE: 1" PVC

DRILLING CONTRACTOR: Duke's Earth Services

SCREEN TYPE: 1" PVC 10-slot screen

DRILLING METHOD: Geoprobe

SCREEN PACK:

LOGGED BY: Kathy Eck

GROUND ELEVATION:

COMMENTS: Sunny-80s

TOP OF CASING: 100.93

DEPTH (feet)	SAMPLES			OVM Reading	LITHOLOGY DESCRIPTION Texture (USDA): moisture, rupture or plasticity/density, Munsell color, concretions, odor	WELL CONSTRUCTION DETAILS AND/OR DRILLING REMARKS
	Sample No.	Sample	Ft of Rec			
0					TOPSOIL	1
2					BRICK AND GRAVEL FILL	1
4			2.5	0.2	LOAMY SAND (fine to coarse), dry, dark brown (10YR3/3)	3
6				0.4	SILTY CLAY, very slightly gravelly (fine to medium), dry, dark yellowish brown (10YR4/4)	5
8				0.4	LOAMY SAND (fine to coarse), gravelly (fine to coarse), dry, brown (10YR5/3)	7
10			3	0.5		9
12				0.8		11
14			2	0		13
16				7.9	SAND (fine to coarse), very gravelly (fine to coarse), wet (satiated), grayish brown (10YR5/2)	15
18				10.4		17
20			4			19
22						21
24						23
26						25
28						27
30						29
31						31

ATTACHMENT 2

LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION



ENVision Laboratories, Inc.
1439 Sadlier Circle West Drive
Indianapolis, IN 46239
Tel: 317.351.8632
Fax: 317.351.8639
www.envisionlaboratories.com

Mr. Frank West
Keramida Environmental , Inc.
401 North College Avenue
Indianapolis, IN 46202

August 28, 2007

ENVision Project Number: 2007-1701
Client Project Name: Off-Site Groundwater Investigation

Dear Mr. West,

Please find the attached analytical report for the samples received August 15, 2007. All test methods performed were fully compliant with local, state, and federal EPA methods unless otherwise noted. The project was analyzed as requested on the enclosed chain of custody record. Please review the comments section for additional information about your results or Quality Control data.

Feel free to contact me if you have any questions or comments regarding your analytical report or service.

Thank you for your business. ENVision Laboratories looks forward to working with you on your next project.

Yours Sincerely,

Cheryl A. Crum

Director of Project Management
ENVision Laboratories, Inc.

IL ELAP / NELAC Accreditation # 100454





ENVision Laboratories, Inc.
1439 Sadlier Circle West Drive
Indianapolis, IN 46239
Tel: 317.351.8632
Fax: 317.351.8639
www.envisionlaboratories.com

Client Name: Keramida Environmental

Project ID: Off-Site Groundwater Investigation

Client Project Manager: Frank West

ENVision Project Number: 2007-1701

Analytical Method: 8260

Prep Method: 5030B

Analytical Batch: 081907VW

Client Sample ID: KB-17W

Envision Sample Number: 7-11115

Sample Matrix: water

Sample Collection Date/Time: 8/15/07 10:05

Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



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8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	55	110%	
1,2-Dichloroethane-d4 (surrogate)	41.7	83%	
Toluene-d8 (surrogate)	51.9	104%	
4-bromofluorobenzene (surrogate)	46.3	93%	

Analysis Date/Time:

08-19-07/20:41

Analyst Initials

Your Projects. Our Passion.

Page 3 of 24



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Fax: 317.351.8639
www.envisionlaboratories.com

Client Name: Keramida Environmental

Project ID: Off-Site Groundwater Investigation

Client Project Manager: Frank West

ENVision Project Number: 2007-1701

Analytical Method: 8260

Prep Method: 5030B

Analytical Batch: 081907VW

Client Sample ID: KB-19W

Envision Sample Number: 7-11116

Sample Matrix: water

Sample Collection Date/Time: 8/15/07 12:20

Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



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8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	121	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	55.6	111%	
1,2-Dichloroethane-d4 (surrogate)	41.4	83%	
Toluene-d8 (surrogate)	52.7	105%	
4-bromofluorobenzene (surrogate)	48.9	98%	

Analysis Date/Time:

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Client Name: Keramida Environmental
Project ID: Off-Site Groundwater Investigation
Client Project Manager: Frank West
ENVision Project Number: 2007-1701
Analytical Method: 8260
Prep Method: 5030B
Analytical Batch: 081907VW
Client Sample ID: KB-20W
Envision Sample Number: 7-11117
Sample Matrix: water
Sample Collection Date/Time: 8/15/07 12:55
Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



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<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	134	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	57.5	115%	
1,2-Dichloroethane-d4 (surrogate)	43.2	86%	
Toluene-d8 (surrogate)	53.7	107%	
4-bromofluorobenzene (surrogate)	50.5	101%	

Analysis Date/Time:
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Client Name: Keramida Environmental
Project ID: Off-Site Groundwater Investigation

Client Project Manager: Frank West

ENVision Project Number: 2007-1701

Analytical Method: 8260
Prep Method: 5030B
Analytical Batch: 081907VW

Client Sample ID: KB-16W
Envision Sample Number: 7-11118
Sample Matrix: water

Sample Collection Date/Time: 8/15/07 13:55
Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



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<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	8.31	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	53.4	107%	
1,2-Dichloroethane-d4 (surrogate)	42.2	84%	
Toluene-d8 (surrogate)	53.5	107%	
4-bromofluorobenzene (surrogate)	57.3	115%	

Analysis Date/Time:
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Client Name: Keramida Environmental
Project ID: Off-Site Groundwater Investigation

Client Project Manager: Frank West

ENVision Project Number: 2007-1701

Analytical Method: 8260
Prep Method: 5030B
Analytical Batch: 081907VW

Client Sample ID: KB-18W
Envision Sample Number: 7-11119
Sample Matrix: water

Sample Collection Date/Time: 8/15/07 14:15
Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



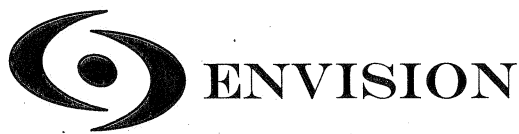
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<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	101	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	56.7	113%	
1,2-Dichloroethane-d4 (surrogate)	40.5	81%	
Toluene-d8 (surrogate)	55.3	111%	
4-bromofluorobenzene (surrogate)	62.7	125%	

Analysis Date/Time:
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Client Name: Keramida Environmental
Project ID: Off-Site Groundwater Investigation

Client Project Manager: Frank West

ENVision Project Number: 2007-1701

Analytical Method: 8260
Prep Method: 5030B
Analytical Batch: 081607VW

Client Sample ID: KB-21W
Envision Sample Number: 7-11120
Sample Matrix: water

Sample Collection Date/Time: 8/15/07 14:35
Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



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<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	3940	250	1
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	8.98	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	61.4	123%	
1,2-Dichloroethane-d4 (surrogate)	44.4	89%	
Toluene-d8 (surrogate)	51.4	103%	
4-bromofluorobenzene (surrogate)	56.7	113%	

Analysis Date/Time:

08-16-07/18:06

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Client Name: Keramida Environmental

Project ID: Off-Site Groundwater Investigation

Client Project Manager: Frank West

ENVision Project Number: 2007-1701

Analytical Method: 8260
Prep Method: 5030B
Analytical Batch: 081907VW

Client Sample ID: DUP-01
Envision Sample Number: 7-11121
Sample Matrix: water

Sample Collection Date/Time: 8/15/07
Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



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8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	57	114%	
1,2-Dichloroethane-d4 (surrogate)	41.9	84%	
Toluene-d8 (surrogate)	54.2	108%	
4-bromofluorobenzene (surrogate)	61.9	124%	

Analysis Date/Time:

08-19-07/17:22

Analyst Initials

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Page 15 of 24



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Client Name: Keramida Environmental
Project ID: Off-Site Groundwater Investigation
Client Project Manager: Frank West
ENVision Project Number: 2007-1701
Analytical Method: 8260
Prep Method: 5030B
Analytical Batch: 081907VW
Client Sample ID: Trip Blank
Envision Sample Number: 7-11122
Sample Matrix: water
Sample Collection Date/Time: 8/15/07
Sample Received Date/Time: 8/15/07 15:13

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	



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8260 continued...

<u>Compounds</u>	<u>Sample Results (ug/L)</u>	<u>Reporting Limit (ug/L)</u>	<u>Flags</u>
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	
Hexachloro-1,3-butadiene	< 5	5	
n-Hexane	< 10	10	
2-Hexanone	< 10	10	
Iodomethane	< 10	10	
Isopropylbenzene (Cumene)	< 5	5	
p-Isopropyltoluene	< 5	5	
Methylene chloride	< 5	5	
4-Methyl-2-pentanone (MIBK)	< 10	10	
Methyl-tert-butyl-ether	< 5	5	
Naphthalene	< 5	5	
n-Propylbenzene	< 5	5	
Styrene	< 5	5	
1,1,1,2-Tetrachloroethane	< 5	5	
1,1,2,2-Tetrachloroethane	< 5	5	
Tetrachloroethene	< 5	5	
Toluene	< 5	5	
1,2,3-Trichlorobenzene	< 5	5	
1,2,4-Trichlorobenzene	< 5	5	
1,1,1-Trichloroethane	< 5	5	
1,1,2-Trichloroethane	< 5	5	
Trichloroethene	< 5	5	
Trichlorofluoromethane	< 5	5	
1,2,3-Trichloropropane	< 5	5	
1,2,4-Trimethylbenzene	< 5	5	
1,3,5-Trimethylbenzene	< 5	5	
Vinyl acetate	< 10	10	
Vinyl chloride	< 2	2	
Xylene, M&P	< 5	5	
Xylene, Ortho	< 5	5	
Xylene (Total)	< 10	10	
Dibromofluoromethane (surrogate)	52.6	105%	
1,2-Dichloroethane-d4 (surrogate)	43	86%	
Toluene-d8 (surrogate)	52.2	104%	
4-bromofluorobenzene (surrogate)	41.6	83%	

Analysis Date/Time:

08-19-07/19:36

Analyst Initials

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8260 Quality Control Data

ENVISSION Batch Number: 081607VW

<u>Method Blank (MB):</u>	<u>MB Results (ug/L)</u>	<u>Rep Lim (ug/L)</u>	<u>Flag</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	



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8260 QC Continued...

Method Blank (MB):

	<u>MB Results (ug/L)</u>	<u>Rep Lim (ug/L)</u>
Hexachloro-1,3-butadiene	< 5	5
2-Hexanone	< 10	10
n-Hexane	< 10	10
Iodomethane	< 10	10
Isopropylbenzene (Cumene)	< 5	5
p-Isopropyltoluene	< 5	5
Methylene chloride	< 5	5
4-Methyl-2-pentanone (MIBK)	< 10	10
Methyl-tert-butyl-ether	< 5	5
Naphthalene	< 5	5
n-Propylbenzene	< 5	5
Styrene	< 5	5
1,1,1,2-Tetrachloroethane	< 5	5
1,1,2,2-Tetrachloroethane	< 5	5
Tetrachloroethene	< 5	5
Toluene	< 5	5
1,2,3-Trichlorobenzene	< 5	5
1,2,4-Trichlorobenzene	< 5	5
1,1,1-Trichloroethane	< 5	5
1,1,2-Trichloroethane	< 5	5
Trichloroethene	< 5	5
Trichlorofluoromethane	< 5	5
1,2,3-Trichloropropane	< 5	5
1,2,4-Trimethylbenzene	< 5	5
1,3,5-Trimethylbenzene	< 5	5
Vinyl acetate	< 10	10
Vinyl chloride	< 2	2
Xylene, M&P	< 5	5
Xylene, Ortho	< 5	5
Xylene (total)	< 10	10
Dibromofluoromethane (surrogate)	122%	
1,2-Dichloroethane-d4 (surrogate)	96%	
Toluene-d8 (surrogate)	100%	
4-bromofluorobenzene (surrogate)	101%	
Analysis Date/Time:	08-16-07/15:29	
Analyst Initials	tjg	



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8260 QC Continued...

<u>LCS/LCSD</u>	<u>LCS Results (ug/l)</u>	<u>LCS/LCSD Conc. (ug/l)</u>	<u>LCSD Result (ug/l)</u>	<u>LCS Rec.</u>	<u>LCSD Rec.</u>	<u>RPD</u>	<u>Flag</u>
1,1-Dichloroethene	49.2	50	55.8	98%	112%	12.6%	
Benzene	50.5	50	49.1	101%	98%	2.8%	
Trichloroethene	50.7	50	54.5	101%	109%	7.2%	
Toluene	58.1	50	61.2	116%	122%	5.2%	
Chlorobenzene	51.4	50	54.2	103%	108%	5.3%	
Dibromofluoromethane (surrogate)	92%		106%				
1,2-Dichloroethane-d4 (surrogate)	84%		96%				
Toluene-d8 (surrogate)	100%		100%				
4-bromofluorobenzene (surrogate)	96%		105%				
Analysis Date/Time:	08-16-07/14:54		08-16-07/13:03				
Analyst Initials	tjg		tjg				

<u>Matrix Spike/Matrix Spike Dup:</u>	<u>Sample Results (ug/L)</u>	<u>MS Res (ug/L)</u>	<u>MSD Res (ug/L)</u>	<u>Spk Conc (ug/L)</u>	<u>MS Rec</u>	<u>MSD Rec</u>	<u>% D</u>	<u>Flag</u>
1,1-Dichloroethene	0	44.1	44.8	50	88%	90%	1.575	
Benzene	0	46	43.5	50	92%	87%	5.587	
Trichloroethene	8.98	45	43.7	50	72%	69%	3.675	
Toluene	0	50.2	51.6	50	100%	103%	2.75	
Chlorobenzene	0	42.6	44.2	50	85%	88%	3.687	
Dibromofluoromethane (surrogate)	123%	84%	91%					
1,2-Dichloroethane-d4 (surrogate)	89%	99%	91%					
Toluene-d8 (surrogate)	103%	96%	101%					
4-bromofluorobenzene (surrogate)	113%	92%	83%					
Analysis Date/Time:	08-16-07/18:06	08-18-07/22:38	08-18-07/22:15					
Analyst Initials	tjg	tjg	tjg					
Original Sample Number Spiked:	7-11120							



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8260 Quality Control Data

ENVision Batch Number: 081907VW

<u>Method Blank (MB):</u>	<u>MB Results (ug/L)</u>	<u>Rep Lim (ug/L)</u>	<u>Flag</u>
Acetone	< 100	100	
Acrolein	< 100	100	
Acrylonitrile	< 100	100	
Benzene	< 5	5	
Bromobenzene	< 5	5	
Bromochloromethane	< 5	5	
Bromodichloromethane	< 5	5	
Bromoform	< 5	5	
Bromomethane	< 5	5	
n-Butanol	< 50	50	
2-Butanone (MEK)	< 10	10	
n-Butylbenzene	< 5	5	
sec-Butylbenzene	< 5	5	
tert-Butylbenzene	< 5	5	
Carbon Disulfide	< 5	5	
Carbon Tetrachloride	< 5	5	
Chlorobenzene	< 5	5	
Chloroethane	< 5	5	
2-Chloroethylvinylether	< 50	50	
Chloroform	< 5	5	
Chloromethane	< 5	5	
2-Chlorotoluene	< 5	5	
4-Chlorotoluene	< 5	5	
1,2-Dibromo-3-chloropropane	< 5	5	
Dibromochloromethane	< 5	5	
1,2-Dibromoethane (EDB)	< 5	5	
Dibromomethane	< 5	5	
1,2-Dichlorobenzene	< 5	5	
1,3-Dichlorobenzene	< 5	5	
1,4-Dichlorobenzene	< 5	5	
trans-1,4-Dichloro-2-butene	< 100	100	
Dichlorodifluoromethane	< 5	5	
1,1-Dichloroethane	< 5	5	
1,2-Dichloroethane	< 5	5	
1,1-Dichloroethene	< 5	5	
cis-1,2-Dichloroethene	< 5	5	
trans-1,2-Dichloroethene	< 5	5	
1,2-Dichloropropane	< 5	5	
1,3-Dichloropropane	< 5	5	
2,2-Dichloropropane	< 5	5	
1,1-Dichloropropene	< 5	5	
cis-1,3-Dichloropropene	< 5	5	
trans-1,3-Dichloropropene	< 5	5	
Ethylbenzene	< 5	5	
Ethyl methacrylate	< 100	100	



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Fax: 317.351.8639
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8260 QC Continued...

Method Blank (MB):	MB Results (ug/L)	Rep Lim (ug/L)
Hexachloro-1,3-butadiene	< 5	5
2-Hexanone	< 10	10
n-Hexane	< 10	10
Iodomethane	< 10	10
Isopropylbenzene (Cumene)	< 5	5
p-Isopropyltoluene	< 5	5
Methylene chloride	< 5	5
4-Methyl-2-pentanone (MIBK)	< 10	10
Methyl-tert-butyl-ether	< 5	5
Naphthalene	< 5	5
n-Propylbenzene	< 5	5
Styrene	< 5	5
1,1,1,2-Tetrachloroethane	< 5	5
1,1,2,2-Tetrachloroethane	< 5	5
Tetrachloroethene	< 5	5
Toluene	< 5	5
1,2,3-Trichlorobenzene	< 5	5
1,2,4-Trichlorobenzene	< 5	5
1,1,1-Trichloroethane	< 5	5
1,1,2-Trichloroethane	< 5	5
Trichloroethene	< 5	5
Trichlorofluoromethane	< 5	5
1,2,3-Trichloropropane	< 5	5
1,2,4-Trimethylbenzene	< 5	5
1,3,5-Trimethylbenzene	< 5	5
Vinyl acetate	< 10	10
Vinyl chloride	< 2	2
Xylene, M&P	< 5	5
Xylene, Ortho	< 5	5
Xylene (total)	< 10	10
Dibromofluoromethane (surrogate)	89%	
1,2-Dichloroethane-d4 (surrogate)	83%	
Toluene-d8 (surrogate)	103%	
4-bromofluorobenzene (surrogate)	102%	
Analysis Date/Time:	08-19-07/12:31	
Analyst Initials	tjg	



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Fax: 317.351.8639
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8260 QC Continued...

<u>LCS/LCSD</u>	<u>LCS Results (ug/l)</u>	<u>LCS/LCSD Conc.</u> <u>(ug/l)</u>	<u>LCSD Result</u> <u>(ug/l)</u>	<u>LCS</u> <u>Rec.</u>	<u>LCSD</u> <u>Rec.</u>	<u>RPD</u>	<u>Flag</u>
1,1-Dichloroethene	46.6	50	46.7	93%	93%	0.2%	
Benzene	45.6	50	44.3	91%	89%	2.9%	
Trichloroethene	50.9	50	52.6	102%	105%	3.3%	
Toluene	47.5	50	48.9	95%	98%	2.9%	
Chlorobenzene	51.9	50	53.7	104%	107%	3.4%	
Dibromofluoromethane (surrogate)	76%		88%				
1,2-Dichloroethane-d4 (surrogate)	90%		88%				
Toluene-d8 (surrogate)	102%		100%				
4-bromofluorobenzene (surrogate)	100%		85%				
Analysis Date/Time:	08-19-07/12:09		08-19-07/11:47				
Analyst Initials	tjg		tjg				



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Flag Number

1

Comments

Reported value is from a 50x dilution. TJG 08-28-07



401 North College Avenue
Indianapolis, IN 46202
(317) 685-6600 - FAX (317) 685-6610

CHAIN OF CUSTODY RECORD

2007-1701

COC# 5913

Project No.		Project Name		Client		Sampled By:		Sample ID/Description		Date		Time		Comp		Grab		HCl		NaOH		HNO ₃		H ₂ SO ₄		Unpreserved		Other		# and Type of Containers		Analyses		Matrix		QA/QC Level		Detection Level		Comments			
12388		Off-Site Groundwater Investigation		Frank West		Dorothy Eck		KB-17 W		8/15/17		1005		X		3																											
								KB-19 W				1220		X		3																											
								KB-20 W				1255		X		3																											
								KB-16 W				1355		X		3																											
								KB-18 W				1405		X		3																											
								KB-21 W				1435		X		3																											
								Dup-01						X		3																											
								Trip Blank						X		3																											

* 7-11-12
Verbal
results
as a p

Attachment E

Comfort Letter (Second Correction), Proposed Redevelopment 2131 - 2151 N.
Meridian Street

Attachment E



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We Protect Hoosiers and Our Environment.

Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

June 5, 2008

Mr. Jeffrey D. Congdon
Harbor Terrace, LLC
152 East 22nd Street, Suite A
Indianapolis, IN 46202

Comfort Letter (Second Correction)
Proposed Redevelopment
2131 – 2151 North Meridian Street
Indianapolis, Marion County
BFD#4070102

Dear Mr. Congdon:

In response to the request by Harbor Terrace, LLC (Harbor Terrace) to the Indiana Brownfields Program (Program) for assistance concerning parcels located on North Meridian Street with street addresses including 2131, 2133, 2137, 2139 and 2151 North Meridian Street (Site), Indianapolis, Marion County, the Indiana Department of Environmental Management (IDEM) has agreed to provide this Comfort Letter to address applicable limitations on liability for environmental conditions on the Site. Though not a legal release from liability, this letter will help to establish whether environmental conditions at the Site might be a barrier to redevelopment or transfer.

The Site consists of five vacant parcels totaling approximately 1- acre and located along Meridian Street between 21st and 22nd Streets. The Site is planned to be redeveloped for commercial/residential use. Historical uses of the parcels comprising the Site included printing operations as far back as the 1920's and from 1980 to 1990. A portion of these parcels was operated as a restaurant or church for more than 35 years. Surrounding properties contain a mix of industrial and commercial use along Meridian Street with residential properties to the east.

As part of your request for assistance in determining any existing environmental impacts and potential liability at the Site, Indiana Brownfields Program staff have reviewed the following reports completed by Keramida Environmental, Inc. (KEI):

- "Phase I Environmental Site Assessment" report for 2133 – 2137 North Meridian Street dated December 28, 2004
- "Phase II Environmental Site Assessment Report" dated June 21, 2005
- "Additional Subsurface Investigation Report" dated November 10, 2006
- "Off-Site Groundwater Investigation Report" dated October 2, 2007

Phase I Site Assessment

The "*Phase I Environmental Site Assessment*" report identified a one-story building surrounded by asphalt parking lot. No recognized environmental conditions (RECs) were identified in connection with addresses at 2133–2137 North Meridian Street. However, the report indicated the potential for negative environmental impact beneath the Site based on the presence of nearby historical gas station/dry cleaner operations within a 1/8-mile radius to the north of the Site; suspected underground storage tanks (USTs) located adjacent to the south; possible subsurface contamination beneath the Site from previous printing activities; suspect polychlorinated biphenyls (PCBs)-containing fluorescent light bulb ballasts in the facility; and suspected asbestos containing materials (SACM).

Phase II Site Assessment

The "*Phase II Environmental Site Assessment Report*" documented the advancement of four soil borings and the installation of temporary piezometers to investigate subsurface conditions beneath the Site. Soil and groundwater samples were analyzed for one or more of the following constituents: volatile organic compounds (VOCs); semi-volatile organic compounds (SVOCs); polynuclear aromatic hydrocarbons (PAHs); benzene, toluene, ethyl benzene, and xylenes (BTEX); methyl tertiary butyl ether (MTBE); and Resource Conservation and Recovery Act (RCRA) metals. Soil samples were collected from 2 to 4 feet below ground surface (bgs) at three locations with soil samples collected from the fourth location at a depth of 12 to 14 feet bgs. From the samples submitted for testing, only metals were detected, including: total arsenic, total barium, total cadmium, total chromium, total lead, and total mercury. The soil sample collected from boring KB-2 at a depth of 2 to 4 feet bgs detected total arsenic at a level of 20 parts per million (ppm), which is above IDEM's January 2006 Risk Integrated System of Closure (RISC) Residential Default Closure Level (RDCL) of 3.9 ppm, but below the applicable RISC construction worker level of 320 ppm. Total lead at that same location indicated a concentration of 240 ppm, which is above the IDEM RISC RDCL of 81 ppm but below the applicable RISC residential direct contact level of 400 ppm.

Groundwater samples collected from the four boring locations indicated the presence of chloroform, 1,2,4-trimethylbenzene, tetrachloroethene (PCE), trichloroethene (TCE), total arsenic, total barium, total chromium, and total lead in one or more of the analyzed samples. Of the VOCs analyzed, only PCE was detected above a RDCL. PCE concentrations in groundwater ranged from 26 parts per billion (ppb) to 560 ppb, which is above both the RISC RDCL of 5 ppb and the RISC Industrial/Commercial Default Closure Level (IDCL) of 55 ppb. Total metals results indicated total arsenic ranging from 41 ppb to 110 ppb. The arsenic RISC IDCL is 10 ppb. Total lead ranged from 12 ppb to 74 ppb, of which two samples were above the RISC RDCL of 15 ppb and the RISC IDCL of 42 ppb. To assess the effect of sample turbidity on the analytical results, groundwater samples exceeding a RDCL for total metals were submitted for dissolved metals analyses, with all sample results below detection limits. Groundwater was measured to be located between approximately 15 feet to 17 feet bgs in the four piezometers with a groundwater

flow direction from the northeast to the southwest across the Site. Based on PCE concentrations detected in the groundwater beneath the Site, human exposure to vapors in indoor air was identified as a risk at this Site.

Additional Subsurface Investigation

The "*Additional Subsurface Investigation Report*" included the advancement of eleven soil borings, replacement of a previously installed piezometer, and the collection of groundwater level data and samples from existing monitoring wells. Borings were placed to further delineate the previously identified PCE contamination on the Site and to confirm whether impacts are from an on-Site or off-Site source(s). The investigation soil and groundwater samples were tested for VOCs.

Soil boring locations KB-14 and KB-15 were placed inside the existing structure near the former printing operation since it was considered a potential source of on-Site contamination. PCE was detected in KB-14 at 0.0068 ppm at a depth from 0 to 1 feet bgs and at a concentration of 0.016 ppm at a depth of 16 to 18 feet bgs, both results are below the RISC RDCL of 0.058 ppm. Soil results from KB-15 indicated naphthalene at 0.0063 ppm at a depth of 16 to 18 feet bgs, which is below the RISC RDCL of 0.7 ppm. No other VOCs were detected in the soil samples submitted. Table 1 below identifies VOCs detected in the on-Site soils.

Table 1 – On-Site VOC Soil Results

Sample ID	Tetrachloroethene	Naphthalene
KB-14 (0'-1')	0.0068	<0.0053
KB-14 (16'-18')	0.016	<0.0054
KB-15 (0'-1')	<0.0054	<0.0054
KB-15 (16'-18')	<0.0053	0.0063
RISC RDCL	<i>0.058</i>	<i>0.7</i>
RISC IDCL	0.64	170

Results in ppm

Italicized result indicates concentrations above RISC RDCL

Bolded result indicates concentration above RISC IDCL

Groundwater analyses for VOCs indicated the presence of cis-1,2-dichloroethene (1,2 DCE), chloroform, MTBE, toluene, PCE and TCE in up to 10 samples. 1,2 DCE, chloroform, MTBE, and toluene were noted in one or more groundwater samples, but below their respective RISC RDCLs. PCE levels ranged from 9.6 ppb to 2,400 ppb, all above the RISC RDCL of 5 ppb, with seven of those samples above RISC IDCL of 55 ppb. TCE was detected in seven groundwater samples ranging from 1.0 ppb to 27 ppb with all but the sample collected from MW-2, below the RISC RDCL of 5 ppb. The sample from MW-2 and its duplicate were, however, below the RISC IDCL of 31 ppb. The highest concentration of PCE and TCE were detected in MW-2 located near the northeast corner and most up-gradient portion of the Site. Table 2 identifies VOCs above RISC RDCLs on-Site in groundwater.

Table 2 – On-Site VOC Groundwater Results

Sample ID	Tetrachloroethene	Trichloroethene
KB-8W (18'-22')	9.6	<1.0
KB-9W (18'-22')	130	<1.0
KB-10W (18'-22')	200	1.2
KB-10W (18'-22') Dup	160	1.0
KB-11	41	<1.0
KB-12	18	<1.0
KB-13	290	3.2
MW-1	330	3.2
MW-2	770	27
MW-2 Dup	2,400	24
KB-14W (19'-23')	180	<1.0
KB-15W (19'-22')	21	<1.0
RISC RDCL	5	5
RISC IDCL	55	31

Results in ppb.

Italicized result indicates concentrations above RISC RDCL.

Bolded result indicates concentration above RISC IDCL.

The results of the “*Additional Subsurface Investigation Report*” indicated limited VOC impacts to subsurface soils and the groundwater flow across the Site was confirmed to be from a northeast to southwest direction. In addition, the highest level of VOCs detected in the groundwater are located on or near the up-gradient edge of the Site indicating the presence of an off-Site source of the PCE and TCE.

Off-Site Groundwater Investigation

The “*Off-Site Groundwater Investigation Report*” included the advancement of six borings in the right-of-way of Pennsylvania Street and on the property at 2162 North Pennsylvania Street, all south of 22nd Street. The boring locations were selected based on their approximate down-gradient location to the existing Penn 60-Minute Dry Cleaner located at 2175 North Pennsylvania Street, a suspected source of the VOCs detected on Site. Three of the six borings were completed as temporary piezometers to allow the collection of data for groundwater flow direction and VOC testing to confirm an up-gradient source to the Site of VOCs previously identified in the groundwater. Groundwater flow across the investigative area was confirmed to be from a northeast to a southwest direction and toward the Site. Soil samples collected during probing activities were classified and screened using a flame-ionization detector did not indicate the presence of any contamination within the unsaturated soil column. Therefore, only groundwater samples were collected and analyzed for VOCs.

Groundwater analyses for VOCs indicated the presence of PCE at five of the six locations ranging from 8.31 ppb to 3,940 ppb, all above the RISC RDCL of 5 ppb. Four of those groundwater samples were above the RISC IDCL of 55 ppb. TCE was also detected in one sample at 8.98 ppb, which is above its RISC RDCL of 5 ppb. Both PCE and TCE were detected in the groundwater up-gradient of the Site, with PCE concentrations in the groundwater significantly higher in KB-21W than concentrations detected beneath the Site. Table 3 below identifies VOCs above RISC RDCLs in the up-gradient and off-Site locations sampled.

Table 3 – Off-Site VOC Groundwater Results

Sample ID	Tetrachloroethene	Trichloroethene
KB-16W	<i>8.31</i>	<5.0
KB-17W	<5.0	<5.0
KB-17W (Dup)	<5.0	<5.0
KB-18W	101	<5.0
KB-19W	121	<5.0
KB-20W	134	<5.0
KB-21W	3,940	8.98
RISC RDCL	5	5
RISC IDCL	55	31

Results in ppb.

Italicized result indicates concentrations above RISC RDCL.

Bolded result indicates concentration above RISC IDCL.

In summary:

- (1) PCE was identified in on-Site soil boring KB-14 near the former printing operation at a depth from 0 to 1 feet bgs at levels above detection but below the RISC RDCL of 0.058 ppm. No evidence of any other source of the VOC contaminants above the RISC RDCL was detected in soils on Site with the exception of smear zone soils impacted from groundwater fluctuations. Groundwater samples collected from thirteen locations on or immediately adjacent to the Site contained PCE detected above the RISC RDCL of 5 ppb;
- (2) Evidence of higher PCE and TCE concentrations up-gradient of the Site were detected above their RISC RDCL of 5 ppb;
- (3) Due to the locations and concentrations of the groundwater contamination detected on-Site, the detections are consistent with groundwater transport from an off-Site source;
- (4) VOC concentrations detected in the groundwater beneath and adjacent to the Site pose a risk of human exposure to vapor intrusion for future on-Site development;

- (5) Total arsenic was detected in boring KB-2 (2 to 4 feet bgs) at a level of 20 ppm, which is above IDEM's RISC RDCL of 3.9 ppm, but below the applicable RISC construction worker level of 320 ppm;
- (6) Total lead was also detected in soil in KB-2 (2 to 4 feet bgs) at a concentration of 240 ppm which is above the IDEM RISC RDCL of 81 ppm but below the RISC residential direct contact level of 400 ppm; and
- (7) Detections of metals in groundwater were related to sample turbidity and were not indicative of groundwater contamination.

Liability Clarification

Consistent with the *Property Containing Contaminated Aquifers Non-Rule Policy Document*, W0047 (January 30, 1997) (Contaminated Aquifers Policy), IDEM will not hold an owner, lessor, or tenant of a property responsible for contamination that migrates onto or through the property from an off-Site source. Based on the information submitted to and reviewed by IDEM, IDEM concludes that:

- (1) The VOC contamination detected above their respective RISC RDCLs has come to be located on the Site as the result of subsurface migration in an aquifer from a source outside of the boundaries of the Site;
- (2) Harbor Terrace has neither caused, contributed to, or exacerbated the release or threat of release of VOCs in groundwater or total lead in soil found on the Site; and
- (3) no direct or indirect contractual relationship exists between Harbor Terrace and the party or parties responsible for the contamination.

Following its review, Indiana Brownfields Program staff concluded that, based on the information received, there is only one PCE source identified on-Site (at KB-14, from 0 to 1 foot bgs where PCE in soil was detected at a concentration below the RISC RDCL) that is likely from historical activities on the Site. No sources of contamination to the groundwater were identified on Site. If Harbor Terrace takes the steps set forth in this letter below to eliminate all existing groundwater and vapor exposure pathways, the Site can be responsibly redeveloped.

IDEM also concludes, in part based on the information provided by Harbor Terrace, that:

- (1) no state or federal enforcement action at the Site is pending;
- (2) no federal grant requires an enforcement action at the Site;
- (3) no condition on the Site constitutes an imminent and substantial threat to human health or the environment; and
- (4) neither Harbor Terrace nor an agent or employee of Harbor Terrace caused, contributed to, or knowingly exacerbated the release or threat of release of any hazardous substance or petroleum at the Site.

Based on the information submitted to or otherwise reviewed by IDEM and consistent with the conditions of the Contaminated Aquifers Policy, IDEM will exercise its enforcement discretion to forego pursuit of Harbor Terrace (or any successor owners and operators of the Site

that also satisfy the conditions of this letter and the Contaminated Aquifers Policy) for response costs relating to, or require them to respond to, the release of the contaminants identified on and northeast of the Site as described in this letter.

If IDEM later discovers that the investigations and any other information submitted to and reviewed by IDEM in reaching the above determination was inaccurate, or if any activities undertaken by an owner or operator of the Site exacerbate any contamination located on the Site, then IDEM reserves the right to revoke this decision and pursue any responsible parties. Additionally, this decision does not apply to past or present contamination that is not described in this Comfort Letter, future releases, or applicable requirements under the Resource Conservation and Recovery Act, 42 U.S.C. § 6901.

IDEM encourages the redevelopment of this Site. Please be advised that any work performed at the subject property must be done in accordance with all applicable environmental laws. Furthermore, redevelopment of this Site in a manner consistent with the land use restrictions outlined below will lessen the possibility that environmental conditions at the property could deteriorate in the future.

IDEM's Contaminated Aquifers Policy requires that a site owner exercise "due care" with respect to known contamination. In this case, "due care" includes not using the Site for agricultural purposes, and not using groundwater found at the Site as a potable water source. Furthermore, any existing on-Site water well(s) must be properly abandoned pursuant to Indiana Administrative Code, 312 IAC 13-10-2 (Permanent abandonment of wells). Also, all new occupied buildings constructed on the Site must include a vapor intrusion mitigation system that is protective of human health, safety or welfare, and the environment and is designed and installed in accordance with U.S. EPA standards. Additionally, as a condition of this letter's effectiveness, Harbor Terrace shall grant access to the Site for possible future sampling and/or remedial activities performed by IDEM and/or any responsible party's designated environmental consultant/contractor as required for environmental investigation and remediation of contamination found on-Site.

To ensure that "due care" is undertaken with respect to environmental site conditions, IDEM is requiring the Site owner to record an environmental restrictive covenant (ERC) on the deed(s) for the Site. The ERC, which is attached hereto, must include the following restrictions on use of the Site, which are summarized below:

- neither engage in nor allow installation of new wells on-Site or allow the use of existing water wells on the Site for potable water supplies,
- neither engage in nor allow the use of the Real Estate for agricultural purposes,
- install a vapor intrusion mitigation system (similar to a radon mitigation system) that is protective of human health and the environment, designed and installed in accordance with applicable standards, in any existing or newly-constructed enclosed structure on the Site that will have regular occupancy. Any such vapor mitigation system shall be satisfactorily operated and maintained, including annual inspections of the system by a

qualified professional, to ensure its effectiveness unless and until such time as the Site owner demonstrates to IDEM's satisfaction that no levels of contamination harmful to human health are impacting indoor air in the particular building on the Real Estate.

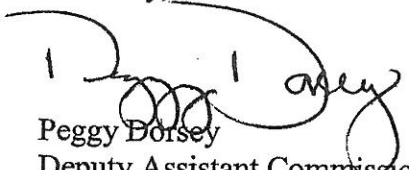
The above restrictions must stay in place until such time that the groundwater contamination on-Site and on the adjoining properties to the northeast has been mitigated and IDEM determines the restrictions can be removed.

In order for this letter to be given effect by IDEM, Harbor Terrace must record this letter and the ERC in the Marion County Recorder's Office. Please return a certified copy of the filed documents to:

Indiana Brownfields Program
100 North Senate Avenue
Room N1275
Indianapolis, IN, 46204
ATTN: Ken Coad, Project Manager

IDEM and the Indiana Brownfields Program are pleased to assist Harbor Terrace with the commercial redevelopment of this Site. Should you have any questions or comments, please contact Ken Coad of the Indiana Brownfields Program at (800) 451-6027, ext. 4-3-8409 or (317) 233-8409.

Sincerely,



Peggy Dorsey
Deputy Assistant Commissioner
Office of Land Quality

cc: Gary Levine, Harbor Terrace, LLC
Jan Pels, U.S. EPA Region 5
Meredith Gramelspacher, Indiana Brownfields Program
Ken Coad, Indiana Brownfields Program
Frank West, Keramida Environmental, Inc.

Attachment F

Site Photographs

Attachment F – Site Photographs



View of front of Penn 60 Minute Cleaners building, looking southeast.

Attachment F – Site Photographs



View of front of Penn 60 Minute Cleaners building, looking northeast.

Attachment F – Site Photographs



View of rear and alleyway behind Penn 60 minute Cleaners building.

Attachment F – Site Photographs



Residences and business due west, across the street from Penn 60 Minute Cleaners.

Attachment F – Site Photographs



Residence (yellow, on the right) due south of Penn 60 Minute Cleaners (blue, on the left). The small gap between buildings is visible.